

Health and Safety Practices and Perceptions of COVID-19 in Long-Haul Truck Drivers

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Objective: To examine long-haul truck drivers (LHTD) perceptions of COVID-19 and their use of health and safety practices. **Methods:** 146 LHTD completed an online survey to collect data on their experiences with COVID-19. Data were analyzed using descriptive and inferential statistics, and thematic analysis for open-ended responses. **Results:** LHTD were aged from 22 to 79 years (mean age 48.1 ± 11.8); 82.2% were men. Almost half of the sample were not concerned about COVID-19. Those not concerned were significantly less likely to employ health and safety practices (eg, wearing masks, social distancing), were less educated and healthier. They also perceived COVID-19 to not be real or a serious threat to their health. **Conclusions:** Tailored education approaches are needed to provide evidence-based data on COVID-19 risks and complications.

Keywords: COVID-19, health and safety, long-haul truck drivers (LHTD), perceptions

Long-haul truck drivers (LHTD) are an essential sector of the workforce responsible for shipping goods/products across North America, especially during the COVID-19 pandemic. LHTD account for 90% of consumer goods and food shipments, including medical supplies needed for combating COVID-19 in Canada,¹ showing the importance of this profession in providing goods/products required for health care and quality of life among Canadians. To facilitate timely shipment of food and supplies during the pandemic, including the delivery of vaccines, LHTD have been exempt from typical COVID-19 protocols. For example, LHTD were allowed to work beyond their usual hours-of-service and were not required to self-isolate as they drove between provinces and when returning from the USA.²

One potential issue with the lack of self-isolation requirements is the potential spread of the COVID-19 virus. LHTD often interact with numerous individuals on their trips and visit multiple locations (eg, gas stations, truck stops) that increases their potential exposure to the virus and could increase the spread of COVID-19.^{3,4} Data from the USA and United Kingdom show that transport-related work pose the greatest risk for COVID-19 transmission.⁵ Similarly, another study in Uganda showed that LHTD are associated with the spread of COVID-19 in the community.⁶ Consequently, LHTD should receive priority vaccinations⁷ and the appropriate knowledge of health and safety practices to reduce the risk of COVID-19 transmission.

In Canada, guidelines are provided by Transport Canada for commercial drivers and commercial companies. Companies are encouraged to minimize the number of vehicles shared by employees and to ensure drivers have access to masks, as well as disinfectants and sanitizers to clean high-touch surfaces of their trucks. For drivers, information is provided on COVID-19 symptoms, how to reduce the risk of infection (eg, wash hands often, keep 6 feet apart), and areas of the truck that should be cleaned regularly (eg, starter button, door handles, steering wheel).² While the Canadian federal guidelines are broadly for commercial drivers, the Center for Disease Control in the USA provides specific guidelines for the long-haul trucking industry. The guidelines between the two countries are similar but the US provides specific examples of truck cleaning protocols including using paperless invoicing for fueling and deliveries, contacting facilities in advance for unloading cargo, using the phone/radio to talk to other drivers or dock managers, pack supplies and food in the truck, avoid shaking hands and keeping the truck ventilated.⁸

While media articles report that LHTD are concerned about travelling across Canada, and particularly to the United States where COVID-19 rates are substantively higher,^{9,10} there has been little research on COVID-19 in LHTD. The Canadian Trucking Alliance performed a survey of 12,000 cross-border LHTD from 35 truck companies with only 60 LHTD reportedly contracting COVID-19 since March 2021.¹¹ However, no information was provided as to the whether LHTD perceive COVID-19 to be a threat, what health measures they take to reduce the spread of COVID-19, and where they access COVID-19 related information.

Although our prior study found that LHTD were stressed, and physically and mentally fatigued working during the pandemic,¹² many studies show that LHTD have high rates of chronic diseases,^{13–20} increasing the risk for COVID-19 complications.³ Thus, it is hypothesized the LHTD will practice appropriate health and safety practices to reduce the risk of contracting COVID-19. The objectives of this paper are to:

1. determine how many LHTD have been tested for COVID-19;
2. assess LHTD perceptions of contracting COVID-19;
3. examine whether LHTD are using health and safety practices; and
4. determine how LHTD are accessing information about COVID-19.

MATERIALS AND METHODS

Protocol

The study was approved by the Research Ethics Board [REB # Beh 2127]. Data were collected from August 2020 to March 2021 using an online survey sent to provincial trucking associations in Canada, as well as multiple trucking advocacy associations through email. Most provincial trucking/advocacy associations disseminated the survey to its members, however, some declined due to its members being over-burdened with other surveys. After 5 months of continuous recruitment through the provincial trucking/advocacy organizations, and due to the low number of participant responses, the research team began using social media (eg, twitter, Facebook) to connect with trucking groups and advertise the

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Clinical Significance: This study shows that some long-haul truck drivers (LHTD) were not concerned about contracting COVID-19. The lack of concern was associated with poorer education and better health, as well as fewer safety practices (eg, social distancing, wearing masks) to mitigate the risk of contracting COVID-19. Tailored educational approaches are needed to better inform LHTD of COVID-19 risks and complications.

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study. The online survey, which consisted of both closed and open-ended questions on how COVID-19 has influenced their working conditions, took about 20–30 min to complete. The survey collected demographic information, employment history, current working conditions, health issues, lifestyle practices, and specific questions surrounding COVID-19 including how many LTHD were tested for COVID-19, how many were concerned, whether they were self-isolated, reasons for being concerned/not concerned, health and safety prevention strategies, as well as how LTHD received/search for information on COVID-19. There were 50 questions in total with each participant being entered into a draw for a \$25 gift card. Each participant signed informed consent prior to participation.

Participants

LTHD were recruited to participate if they

1. were a Canadian resident,
2. identified as a long-haul truck driver, and
3. had been working for at least one year as a LTHD.

A minimum of one-year working experience was needed to ensure LTHD could make informed responses of the working conditions prior to COVID-19. The sample included 146 LTHD recruited through advertisements posted on trucking associations across Canada (eg, Safety Driven, Alberta Motor Transport Association, the Saskatchewan Trucking Association, the Manitoba Trucking Association, Private Motor Truck Council of Canada, Nova Scotia Trucking Safety Association) and social media accounts related to trucking (eg, Facebook groups, twitter).

Data Analysis

Survey data were analyzed using the Statistical Package for the Social Sciences (SPSS) version 25. Continuous variables were presented using mean and standard deviation (Mean \pm SD) and range. Categorical variables were presented using frequencies and percentages. Associations between variables were examined using Pearson chi-square or independent *t* tests. The significance level was $P < .05$.

All open-ended responses were analyzed thematically, which involved identifying and recording patterns in the data. Initial codes were developed deductively resulting in the development of themes through the identification and organization of common responses in the data. Two coders were utilized for the analyses; one identified the initial codes and categories and the other confirmed the accuracy of these codes and categories and identified the final themes.

RESULTS

Sample Description

The sample ranged in age from 22 to 79 years ($M = 48.0$, $SD = 11.8$); 82.2% were male and 90% were Caucasian. Just over a quarter of the sample were from Alberta (26%) followed by Ontario (23.3%), Saskatchewan and Manitoba (both 10.3%), British Columbia (7.5%), New Brunswick and Nova Scotia (both 6.8%), Newfoundland and Labrador (4.1%) and PEI (2.7%) and Quebec (2.1%). Just over a quarter had completed high school (26.7%) with 20.5% completing some college courses and 21.9% completing a vocational/technical degree. Just over half of the sample reported being in very good or excellent health (57.5%) although 58.9% reported that their quality of life had decreased during the pandemic.

COVID-19 Testing

Just a quarter (27.4%) of participants were tested for COVID-19 with 97.5% of tests returning negative (one participant refused to

answer). Of those getting tested, about 26.2% thought they had symptoms and 11.9% thought they were in contact with someone who had symptoms. About 14.3% were required to get tested by their company and 35.7% provided other reasons for being tested including traveling to the USA regularly, working in COVID-19 hotspots, or were required to be tested as part of receiving health care; 11.9% did not provide a response. While awaiting the COVID-19 test results, just over half (53.8%) self-isolated while 44.2% did not. Of those not being tested (72.6%), 63% said they did not get tested as they did not exhibit any symptoms, while others said they were too busy (2.1%), had symptoms and isolated on their own (2.1%) and 2.8% listed other reasons (eg, took temperature daily, do not believe COVID-19 is real, does not trust information government information).

Concerns About Contracting COVID-19

Close to half of the sample (46.6%) were reportedly concerned about contracting COVID-19 while working. Those concerned about COVID-19, compared to those who were not, were significantly older, more educated, in poorer health and were more likely to report having high cholesterol and sleep apnea, more fatigued and having a reduced quality of life during the pandemic, as well as checking COVID-19 updates in Canadian provinces and US states (Table 1).

Safety Practices for the Prevention of COVID-19

When asked what prevention practices LTHD employ while working, 86.8% said they maintain a 6-foot distance where possible. Additionally, about three quarters of the sample reporting wearing a mask when not in the truck, avoid shaking hands, packed their own food and supplies to avoid going into stores/restaurants, and would wash their hands for around 20 sec. Just over half reported washing their truck handles and keeping the truck ventilated. Just under 40% of the sample reported making appointments in advance to load/unload the truck, using electronic invoicing for fueling and deliveries, and using the radio to talk with managers or other personnel (instead of talking with them in person), respectively.

As shown in Table 2, LTHD who were concerned about COVID-19, compared to those who were not, were significantly more likely to maintain a 6-foot distance, to wear a mask outside the truck, to use electronic invoicing for fueling and deliveries, to avoid shaking hands, pack their own food and supplies, wash the door handles and keep the truck ventilated.

Accessing COVID-19 Information

Participants reported receiving information about COVID-19 primarily from the television/radio (70.5%), the provincial government (45.2%), the Public Health Agency of Canada (37%), their company (28.1%), the Canadian Trucking Alliance (7.5%) and their provincial trucking association (6.2%). Almost 25% of respondents provided other avenues including the internet and social media (eg, Facebook, twitter). The sample reported receiving health and safety information from their company (72.6%); less than half of the health and safety guidelines were mandatory (44.5%). Additionally, 13.7% of sample reported receiving health and safety information from the labour union. Less than half of the sample (46.6%) reported checking the COVID-19 updates in the provinces/US states they are traveling to. LTHD who were concerned about COVID, compared to those who were not, were significantly more likely to get information from the television or radio (79.4% vs 63.2%, $\chi^2 = 4.59$, $P = .03$), the Public Health Agency of Canada (50% vs 26.3%, $\chi^2 = 8.59$, $P = .003$), the provincial government (58.8% vs 34.2%, $\chi^2 = 8.76$, $P = .003$) and social media (84.6% vs 47.8%, $\chi^2 = 4.73$, $P = .03$). Those who were not concerned often didn't listen to any source (26.2% vs 0%, $\chi^2 = 4.07$, $P = .044$) compared to those who were concerned).

TABLE 1. Comparisons Between the LHTDs Who Were Concerned and Not Concerned Regarding Contracting Covid-19 (N= 144)

	Concerned (n = 68)	Not concerned (n = 76)	P-value
Age	50.6 ± 10.2 (24–74)	45.6 ± 12 (22–68)	0.004
Gender			0.89
Male	56 (82.9%)	63 (82.4%)	
Female	12 (17.1%)	13 (17.6%)	
Education level			0.02
Less than high school	11 (16.2%)	9 (11.8%)	
GED or high school	20 (29.4%)	26 (34.2%)	
Some college	7 (10.3%)	23 (30.3%)	
Technical degree	20 (29.4%)	12 (15.8%)	
Bachelor’s degree or higher	10 (14.7%)	6 (7.9%)	
Health Condition (N= 143)			0.007
Excellent	5 (7.4%)	12 (15.8%)	
Very Good	26 (38.2%)	39 (51.3%)	
Good	20 (29.4%)	20 (27.6%)	
Fair	12 (17.6%)	4 (5.3%)	
Poor	5 (7.4%)	0 (0.0%)	
Medical Conditions			
Diabetes	16 (23.5%)	10 (13.2%)	0.11
Hypertension	14 (20.6%)	8 (10.5%)	0.09
Sleep apnea	14 (20.6%)	6 (7.9%)	0.03
Hypercholesterolemia	17 (25.0%)	6 (7.9%)	0.005
Pandemic Work-related Fatigue			0.005
Yes	17 (25.0%)	6 (7.9%)	
No	51 (75.0%)	70 (92.1%)	
Has your quality of life worsened during COVID-19?			0.004
Yes	49 (72.1%)	37 (48.7%)	
No	19 (27.9%)	39 (51.3%)	
Currently Smoking			0.62
Yes	25 (36.8%)	31 (40.8%)	
No	43 (63.2%)	45 (59.2%)	
Years worked as a LHTD	19.2 ± 13.7 (1 - 51)	16.1 ± 12.7 (1 - 50)	0.16
Hours worked in the last week	58.5 ± 16.1 (18–100)	60.9 ± 16.1 (2–90)	0.40
Travel Pattern (N= 143)			0.10
Travel to the USA	42 (61.8%)	45 (59.2%)	
Drive within Canada only	19 (27.9%)	28 (38.2%)	
Drive within territory or province only	7 (10.3%)	2 (2.6%)	
Covid-19 Test (N= 143)			0.09
Yes	23 (33.8%)	16 (21.3%)	
No	45 (66.2%)	59 (78.7%)	
Check current number of Covid-19 cases in the provinces/ US states			<0.001
Yes	46 (67.6%)	21 (27.6%)	
No	22 (32.4%)	55 (72.4%)	

Variables presented either using mean, standard deviation and range or frequencies (and percent).

Open Ended Responses

Reasons for Being Concerned About COVID-19

LHTDs reported encountering individuals at multiple locations while working including the office, at restaurants, parking stops, fuel stations and rest areas. LHTD said that many of these individuals, which were mostly the general public, were not wearing masks or socially distancing.

“To many people refusing to follow basic guidelines”

“A lot of people don’t use the necessary precautions ie, that is face mask”

“Too many people are not taking it seriously or doing what is required to protect themselves.”

“The people that go into truck stops and places where I have to go do NOT follow guidelines...employees do but the general public more often than not...don’t.”

Consequently, LHTD were worried that they might either contract COVID-19 or become a carrier (without any noticeable symptoms) and spread the virus inadvertently. Additionally, this fear was more evident when travelling to high-risk areas where the spread of COVID-19 was rampant. They were worried particularly when travelling to the US and to various Canadian provinces where the number of cases were high (eg, Quebec, Saskatchewan, Alberta). This concern was due to being in contact with other workers (at the loading docks) and the general public.

“I travel to the US and other parts of Canada where numbers are increasing as well as the number of people who are not following public health guidelines.”

“We went and still go into areas with extremely high infection numbers. I was in New York City twice during at peak periods.”

“Working in the USA where hardly anyone is taking advised precautions.”

TABLE 2. Prevention Practices to Mitigate the Risk of COVID-19

	Total Sample (N = 144)	Concerned (n = 68)	Not concerned (n = 76)	P-value
Maintain a 6-foot distance where possible				<0.001
Yes	125 (86.8%)	66 (97.1%)	59 (77.6%)	
No	19 (13.2%)	2 (2.9%)	17 (22.4%)	
Wear a mask outside the truck				0.013
Yes	112 (77.8%)	65 (95.6%)	47 (61.8%)	
No	32 (22.2%)	3 (4.4%)	29 (38.2%)	
Use electronic invoicing for fueling and deliveries				0.016
Yes	55 (38.2%)	33 (48.5%)	22 (28.9%)	
No	89 (61.8%)	35 (51.5%)	54 (71.1%)	
Make appointment in advance when loading/unloading freight				0.992
Yes	53 (36.8%)	25 (36.8%)	28 (36.8%)	
No	91 (63.2%)	43 (63.2%)	48 (63.2%)	
Use the radio to talk with dock managers or other personnel				0.298
Yes	55 (38.2%)	29 (42.6%)	26 (34.3%)	
No	89 (61.2%)	39 (57.4%)	50 (65.8%)	
Pack our own food/water/supplies to limit the number of stops				0.006
Yes	110 (76.4%)	59 (86.8%)	51 (67.1%)	
No	34 (23.6%)	9 (13.2%)	25 (32.9%)	
Avoid shaking hands				<0.001
Yes	110 (76.4%)	61 (89.7%)	49 (64.5%)	
No	34 (23.6%)	7 (10.3%)	27 (35.5%)	
Washing your hands for 20 seconds				0.06
Yes	106 (73.6%)	55 (80.9%)	51 (67.1%)	
No	38 (26.4%)	13 (19.1%)	25 (32.9%)	
Do you keep your truck ventilated?				<0.001
Yes	78 (54.2%)	48 (70.6%)	30 (39.5%)	
No	66 (45.8%)	20 (29.4%)	46 (60.5%)	
Do you clean your truck (eg, handles)?				<0.001
Yes	89 (61.2%)	59 (86.8%)	30 (39.5%)	
No	55 (38.2%)	9 (13.2%)	46 (60.5%)	

Variables presented either using mean, standard deviation and range or frequencies (and percent).

“I’m concerned because I travel to the biggest COVID hotspots in the country.”

Many LHTD also reported abiding by the public health guidelines, ensuring they keep a safe distance from others and wear a mask. Additionally, they reported limiting the interaction with other people to reduce any risk (eg, *“I spend most of my hours sitting alone in my truck, which I clean twice a week. I only get out use shower/restrooms and to talk to client”*). Moreover, LHTD said they often bring their own food from home and eat inside their truck cabin instead of going into a restaurant. They also said they disinfect their truck regularly, use sanitizer when re-entering the truck, practice good hygiene (eg, wash hands where possible) and avoid crowd which to minimize the risk of contracting COVID-19.

“I always wear my mask and keep 6 feet away from others. I only go into places if required eg.: shower. I eat in my truck and make as little, if not any contact with shippers and receivers.”

“I’m typically isolated and I follow all the health precautions as per health authorities.”

LHTD reported following health and safety guidelines due to concerns that if they were to contract COVID-19, they might not be able to access healthcare (e.g., *“besides I don’t want to get sick thousands of miles from home or in another country”*). Additionally, they would be required to stop working and self-isolate (eg, *“Would have to isolate in the truck away from family and help. No access to food services meds or other things”*). Many LHTD reported being responsible for earning a substantive portion of their family income,

which would be lost if they could not work (eg, *“Because I’m the bread winner and my family depend on me”*). Additionally, they were aware that contracting COVID-19 would require them to isolate themselves from their family, which is difficult given they are already away from the family due to their job (eg, *“Don’t want to bring it back to my family”*).

Many LHTD reported feeling vulnerable due to their age (older age) and underlying health conditions, recognizing the increased risk of severe COVID-19 complications. Some LHTD reported their immune system was immunocompromised and believed their medical condition(s) would also become worse, or potentially fatal, if they contracted COVID-19.

“At the age where I’m most vulnerable.”

“I have COPD. ...Covid would kill me.”

“...and am OVER 65”

Reasons for Not Being Concerned About COVID-19

LHTD who were not concerned reported that they felt they wouldn’t contract COVID-19. They mentioned that they had been in COVID-19 hotspots and had not contracted the virus (eg, *“I’ve been to hotspots throughout the states and haven’t had it yet”*) and were confident they would not catch the virus in the future. Other LHTDs reported not travelling to high-risk areas frequently, and consequently, became less concerned about contracting the virus. Additionally, a few LHTD said they weren’t in the older driver demographic (eg, *“I’m not in a at risk demographic”*), and if they contracted the disease, were confident their symptoms would be minimal. They felt that they were

strong and healthy enough to not contract COVID-19, and that they would not develop symptoms if they did.

“...I have an immune system that has already fought it off before it was disclosed.”

“I have an immune system. I won't get it”

Many LHTD said they think COVID-19 is a myth that is propagated by the Government and media to incite fear. They said that COVID-19 is similar to the flu, common cold and meningitis with death rates being similar, if not lower in those with COVID-19.

“Because of the fact that the survival rate is higher than the survival rate of a common cold or meningitis. And to top it off the false positive rate of the tests is way too high to take the tests serious without at least two more tests with the same result. And because of insider information from Colleagues from my old Alma mater which are working in the biological medical science field!”

They did not believe COVID-19 to be a fatal disease and that the infection rate is low. Some LHTD reported they did their own research and perceived that COVID-19 is not as deadly as the media/reports suggests (eg, *“do not believe it is as bad as media says it is”*). Some said they had driven to hospitals and did not observe people who were sick or dying from COVID-19 (eg, *“It's a total scam as every hospital I've drove past in Canada and the USA looks like it's abandoned. Where are all the sick and dying people?”*). They perceive the Government to be lying with information being contradictory to the low death rate despite the advice of public health/medical professionals.

“Because it's not dangerous at all, you have a higher chance to get the flu and die from a meningitis than from COVID-19 virus. I'm doing my own research and the numbers are hefty contradictory to the official “government information”, so that there is someone lying to the world!”

“Not going to live in fear. Tired of all the lies and division coming from government officials.”

“COVID-19 has a low mortality rate, especially in young healthy people. Similar to the flu.”

DISCUSSION

Just over a quarter of LHTD in this study were screened for COVID-19. The low percentage of LHTD being tested for COVID-19 is concerning given about 38% of those tested thought they had symptoms or were in contact with someone who had COVID-19 symptoms. Many LHTD reported driving to high-risk areas where the number of COVID-19 cases were high. The LHTD reported that the general public often were not abiding by public health guidelines including social distancing and wearing of a mask. While approximately 75% and 87% of the total sample reported wearing a mask and maintaining a distance of 6 feet from other people, respectively, about 47% of the LHTD sample were not concerned about COVID-19 and practiced mask wearing and social distancing significantly less than those who were concerned. Regardless of work location, LHTD must find areas to stop, eat and use the bathrooms, where they will encounter other drivers and the general public, which may pose an elevated risk to contracting COVID-19.⁴

LHTD who were concerned about COVID-19 were significantly older, fatigued, in poorer health (ie, sleep apnea and high cholesterol) and reported a worse quality of life working

during COVID-19. Prior studies show that LHTD have a high prevalence of medical conditions including sleep apnea and cardiovascular disease,^{13–20} which are accumulated over years of being a LHTD due to the sedentary nature of the job and the availability of non-nutritious foods.^{5,7,13–20} Thus, it is not surprising to see LHTD who are older and with health problems being more concerned, in addition to being more cognizant about public health guidelines. In addition, this group of LHTDs were more educated and possibly more likely to check reliable sources for their information, which may partially explain why this group of LHTD did not think COVID-19 was a government hoax or not real. Moreover, LHTD who were concerned about COVID-19, compared to those who were not, were significantly more likely to employ health and safety practices (eg, staying 6-feet away wear a mask, use electronic invoicing, pack their own food, water and supplies, would avoid shaking hands, keep the truck ventilated and clean the truck handles) to reduce the risk of contracting COVID-19.

The survey included all the items that are listed on the CDC website for mitigating the risk of COVID-19.⁸ While we did not provide the CDC as a response option for where LHTD receive their COVID-19 information, it is interesting to note that many LHTD did not employ these practices. This might be due to the lack of a specific website on health and safety practices specific in LHTD in Canada. Additionally, being younger and in better health often comes with a perception of “being invincible”, and that they cannot be harmed by COVID-19.²¹ Consistent and clear messaging is critically important for informing LHTD of the risks and complications associated with COVID-19 irrespective of health status given that LHTD have been an important driver of community spread.^{5,6}

Given the transmissibility of COVID-19, especially with the new variants, LHTD should employ public health practices to reduce the likelihood of contraction. Given the mobile nature of LHTD moving from province to province or through the USA, LHTD have the potential to be carriers for COVID-19.^{3,4} Recent reports have stated the importance of vaccinating LHTD with LHTD reporting their support for receiving vaccine prioritization considering their designation as an essential workforce.^{7,12} This may both reduce the likelihood of contracting COVID-19, spreading the disease, mitigating health disparities and promoting feelings that they are working in an industry that is appreciated.⁷

Although this study provides insights into the perceptions, health and safety practices of LHTD, there are some study limitations. The survey did not include questions on vaccine status, however, vaccines only became available at the mid-point of the study. Thus, the availability of vaccines and when participants completed the survey may have influenced their perceptions of the risks associated with COVID-19. Additionally, we recruited participants through various channels (emails to trucking organizations, social media posts), however, we could not determine the response rate. Considering there are over 300,000 LHTD in Canada,¹ our sample size was also small, and cannot be generalized to the entire LHTD population. Additionally, we employed a cross-sectional (convenience sampling) study design and cannot infer causation. Nonetheless, this study provides a glimpse of the differing perspectives of COVID-19 risks during the pandemic. It is anticipated that COVID-19 will persist for years to come and given the likelihood that there will be further mutations in the virus, consistent and evidence-driven messaging will be critically important to ensure LHTD remain vigilant, employ health and safety practices, and consider becoming vaccinated.

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