COVID-19

Traveler Summary

Definitions of Common Terms

Close contact: Defined as someone who was less than 2 m (6 ft) away from a person or persons with COVID-19 (laboratory-confirmed or a clinical diagnosis) for more than 15 minutes cumulatively within a 24-hour period (e.g., three 5-minute exposures for a total of 15 minutes), irrespective of whether the COVID-19 case(s) or the contact was wearing a mask. This guidance includes nonhealthcare workplaces and K-12 school settings but not persons with weakened immune systems who may have a longer infectious period. Exclusion: Students in a K-12 indoor classroom setting or a structured outdoor setting where mask wear can be observed (i.e., outdoor class with educator supervision) who were within 1 to 2 m (3-6 ft) of an infected student where both students correctly and consistently wore properly fitting masks the entire time. This exception does not apply to teachers, staff, or other adults in the indoor classroom setting.

Quarantine: The separation of a symptom-free person reasonably believed to have been exposed to person with COVID-19 from others not yet exposed. See Table 1: US Isolation Guidance for the Management of Suspected or Confirmed COVID-19 Cases.

Isolation: The separation of a person suspected or confirmed to have COVID-19 from others who are not infected to prevent spread of the virus. See Table 2: US Quarantine Guidance for the Management of Persons with a Close Contact or Returned from Travel.

Fully vaccinated: Defined as a person who has received their primary COVID-19 vaccine series (including an additional primary dose for immunocompromised persons) at least 2 weeks previously. This currently meets the purposes of US entry requirements, and a booster dose is not needed to meet this requirement. The term "fully vaccinated" is no longer used in other CDC vaccination guidance because the best protection is provided by being up-to-date on vaccination.

Up-to-date: Defined as a person aged 5 years or older who has received (even outside the US) ***all*** recommended primary COVID-19 vaccine doses (including an additional primary dose for immunocompromised persons) as well as recommended booster doses when eligible. Up-to-date status alone affects recommendations for quarantine/isolation.

Hand hygiene: Frequent, thorough handwashing with soap and water for 20 seconds (or using a hand sanitizer containing 60% alcohol).

Respiratory hygiene: Cough and sneeze etiquette.

Self-monitoring: Taking a temperature reading 2 times per day.

Self-observation: Remaining alert for symptoms (fever, cough, or difficulty breathing).

Social distancing: Remaining out of congregate settings (crowded places such as shopping centers, movie theaters, and stadiums), avoiding mass gatherings and public transportation, and maintaining a distance of 2 m (6 ft) from others.

Key Points

- Coronavirus disease 2019 (COVID-19), a viral disease that originated in China, has been declared a global pandemic by the World Health Organization (WHO). Globally, the 7-day rolling average of daily new cases has plateaued since late May 2022. Europe, Asia, and North America are the most affected areas, followed distantly by Latin America, Oceania, Africa, and the Middle East. The outbreak is likely to cause significant risk and disruption for many more months; travel restrictions and internal disruptions continue in many countries.
- COVID-19 results in respiratory illness (including pneumonia) and is acquired mainly via inhalation of respiratory particles from an infected person or (rarely) from direct contact with contaminated surfaces. Risk is proportional to distance from the source case.
- Risk should be assumed present in all countries of the world and is highest in health care facilities in an affected area. Risk of poor outcome increases with age older than 65 years and is higher in persons—regardless of age—with underlying medical conditions (e.g., cancer, obesity, pregnancy, diabetes, sickle cell disease, solid-organ transplantation, and cardiac or kidney disease). The situation is evolving daily; a travel medicine specialist should be consulted immediately before a trip.
- Symptoms commonly include fever, runny nose, dry cough, chills, muscle pain, headache, sore throat, and congestion and may progress to shortness of breath if pneumonia develops. Some infected people have no symptoms.

- Consequences of infection include severe pneumonia, respiratory failure, liver and heart damage, prolonged fatigue, altered mental status, memory loss, and possibly death. Pneumonia is rare in persons who are up to date on vaccination.
- Prevention includes observing respiratory hygiene, hand hygiene, and social distancing, and consistent and correct wearing of the most protective mask that fits well and can be worn consistently. Shoreland preferentially recommends the wearing of a NIOSH-approved N95 respirator.
- Indoor mask wear is recommended for travel into, within, or out of the US when awaiting, boarding, traveling on, or disembarking any public conveyance (e.g., airplanes, ships, ferries, trains, subways, buses, taxis, ride-shares).
- Primary COVID-19 vaccination is recommended for all persons 5 years and older in the US (including all pregnant women, women considering pregnancy, and breastfeeding women), regardless of history of previous COVID-19 (symptomatic or symptom free), including those with prolonged post COVID-19 symptoms; persons in this age group are also eligible for vaccination in Canada and the EU.
    - All persons should be up-to-date on vaccination, which is defined as receipt of all primary COVID-19 vaccine doses (including an additional primary dose for immunocompromised persons) as well as recommended booster dose(s) when eligible.
    - All travelers (domestic, international, and cruise) should be up-to-date on vaccination prior to travel.
    - mRNA COVID-19 vaccines are recommended preferentially over the Janssen/J&J vaccine for primary and booster doses in persons aged 18 years and older.
    - Because Moderna and Pfizer vaccine dosing varies, persons attending vaccine centers should be warned to verify correct dosing.
    - No evidence exists that any of the COVID-19 vaccines affect pregnancy (including placenta development), future fertility, or the safety of breastfeeding for women or their infants.
    - The most common side effects following vaccination with an mRNA vaccine include injection-site reactions (pain, redness, and swelling), fatigue, and headache. Rates are much higher after dose 2. Other systemic side effects are infrequent.
    - Mild myocarditis/pericarditis after mRNA vaccination rarely occurs and is most prevalent in males aged 12-29 years; recovery is usually complete. An optional 8-week interval is recommended between the first 2 doses of an mRNA vaccine in healthy persons aged < 65 years to increase vaccine efficacy and reduce the risk of myocarditis.
    - Those with acute COVID-19 should be vaccinated but should defer vaccination (first or second dose or primary dose or booster doses) until isolation/discontinuation criteria have been met.
- Multiple treatment options exist for the outpatient treatment of persons at high risk of progressing to severe disease as well as hospitalized patients; older or high-risk outpatients with mild disease and persons not fully vaccinated and with a known exposure or a possible high-risk exposure should seek out a center that can administer intravenous monoclonal antibody therapy or postexposure prophylaxis as appropriate. Do not take any oral treatment medications unless prescribed by a provider.
- Many airlines and/or destination countries have begun to discontinue extra prevention measures, including screening for fever before a flight, wearing a mask, or requiring a negative COVID-19 viral diagnostic test result prior to departure.

Introduction

COVID-19, an acute viral respiratory infection that originated in China in late 2019, is responsible for a global pandemic, the worst possible scenario according to the World Health Organization, and will likely cause significant risk and disruption for many more months. The causative coronavirus (SARS-CoV-2) is closely related to the severe acute respiratory syndrome coronavirus (SARS-CoV) that caused SARS in 2002-03. Community transmission is presumed to be occurring in all countries, and more than 540 million cases (including more than 6.3 million deaths) were reported as of early June 2022. Globally, the 7-day rolling average of daily new cases has plateaued since late May 2022.

Several genetic variants (most of which did increase transmissibility or cause more severe disease) have circulated, with Omicron and Omicron sublineages now being predominant globally and regionally. Since the emergence of Omicron, SARS-CoV-2 is rapidly becoming much more efficient in transmission and more likely to evade immunity, but Omicron infection is intrinsically less severe. Super-spreader events are much more likely to occur, especially in crowded settings (regardless of the vaccination status of attendees). A lower share of persons infected with Omicron are likely to require hospital treatment compared to those infected with Delta. Unvaccinated persons remain the most at-risk for hospitalization; however, the vast majority of Omicron breakthrough infections are in vaccinated persons or reinfected persons and are mild due to immune systems experienced with

SARS-CoV-2. The proportion of all diagnosed cases that develop severe disease is lower than with other variants. Publicly reported case numbers and deaths should be regarded as rough estimates because reporting criteria vary widely by country and often do not include cases that were never tested.

Risk Areas

Significant risk exists worldwide and is highest in Europe, Asia, and North America followed distantly by Latin America, Oceania, Africa, and the Middle East.

Transmission

Virus transmission occurs from exposure to infectious respiratory fluids (droplets and particles) from an infected person via inhalation, direct deposition of particles on mucous membranes by splashes and sprays, and contact (touching mucous membranes with contaminated hands). Risk of transmission is greatest within 1 to 2 m (3-6 ft) of an infectious source, where the concentration of these very fine droplets and particles is greatest. However, transmission of SARS-CoV-2 from inhalation of virus in the air farther than 2 m (6 ft) from an infectious source can occur. Although infections through inhalation at distances greater than 2 m from an infectious source are less likely than at closer distances, the phenomenon has occurred under certain preventable circumstances. These transmission events have involved the presence of an infectious person exhaling virus indoors for an extended time (typically > 15 minutes and in some cases hours) leading to virus concentrations in the air space sufficient to transmit infections to people more than 2 m away and, in some cases, to people who have passed through that space soon after the infectious person left. Factors that increase the risk of SARS-CoV-2 infection under these circumstances include enclosed spaces with inadequate ventilation or air handling (exhaled respiratory fluids can build-up in the air space) and increased exhalation of respiratory fluids if the infectious person is engaged in physical exertion or raises their voice (e.g., exercising, shouting, singing). Direct contact with contaminated surfaces is of much lesser concern and no reliable evidence of transmission from food or food packaging exists. Outdoor transmission is negligible. Although children rarely have severe COVID-19, they can transmit the virus. Transmission from persons who do not appear ill (cases are infectious beginning 48 hours before symptom onset) may occur, although most transmission is from household members and other close contacts.

Risk Factors

Risk exists for travelers going to all countries but may be increased in the following cases:

- Travel to countries with high or unknown transmission levels, especially if masking and community mitigation measures are not widely used
- Travel to countries with low population vaccination rates, that allow entrance to unvaccinated foreigners, or require no pre- or postarrival viral testing
- Contact exposure
- Inpatient or outpatient visits to health care facilities in an affected area
- COVID-19 infection prior to December 2021 provides robust protection against the Alpha, Beta, and Delta variants but limited protection against Omicron. However, the combination of a previous SARS-CoV-2 infection and vaccination ("hybrid immunity") seems to confer the greatest protection against symptomatic infection, although clinically, repeat infections are frequently being seen.

At events and gatherings, risk increases with number of persons, density, indoor settings, duration of exposure, and lack of mask use for source control.

The situation is evolving daily, and a travel medicine specialist should be consulted immediately before an actual trip.

Risk of poor outcome is higher in:

- Older persons (risk increases steadily with age)
- Persons with underlying medical conditions
    - Conclusive higher risk: cancer, cerebrovascular disease, chronic kidney disease, chronic liver disease (limited to cirrhosis, nonalcoholic fatty liver disease, alcoholic liver disease, autoimmune hepatitis), chronic lung disease (limited to interstitial lung disease, pulmonary embolism, pulmonary hypertension, bronchopulmonary dysplasia, bronchiectasis, COPD), cystic fibrosis, diabetes type 1 and 2, disabilities (including but not limited to ADHD, cerebral palsy, Down syndrome, learning disabilities), heart conditions (e.g., heart failure, coronary artery disease, cardiomyopathies), HIV (low

CD4 count or not on effective HIV treatment), mental health disorders (limited to mood disorders, including depression and schizophrenia spectrum disorders), neurologic conditions, obesity (BMI > 30), physical inactivity, pregnancy or recent pregnancy, primary immunodeficiencies, smoking (a history of or currently), solid-organ or blood stem-cell transplantation, tuberculosis, and use of corticosteroids or other immunosuppressive medications
    - Suggestive higher risk: children with certain underlying conditions (e.g., serious genetic, neurologic, or metabolic disorders or congenital heart disease), overweight (BMI 25 to < 30), sickle cell disease, substance-use disorders, and thalassemia
    - Mixed evidence: alpha 1 antitrypsin deficiency, asthma (moderate to severe), bronchopulmonary dysplasia, hepatitis B, hepatitis C, and hypertension

No interactions with usual daily medications and COVID-19 outcomes have been found.

Symptoms

Symptoms commonly develop within 2 to 7 days (typically 3 days for Omicron and 4 days for Delta, but up to 14 days) after infection. Omicron is relatively mild compared to Delta, with mild upper respiratory symptoms (such as sore throat) being common. In addition, many persons report gastrointestional symptoms (e.g., diarrhea, nausea, and vomiting) along with nonspecific symptoms (e.g., muscle aches, headache, nasal congestion, and fatigue). In the pre-Omicron era, more than 80% of symptomatic cases had mild-to-moderate symptoms including fever and dry cough, progressing to shortness of breath. Difficulty breathing, chills, muscle pain, headache, sore throat, congestion, runny nose, nausea, vomiting, and diarrhea also occurred. Loss of smell and/or taste (even without fever or cough) are less common with the Omicron variant than the previous variants, where they were early and highly specific symptoms. In some patients, symptoms are mild the first week, and shortness of breath or pneumonia does not begin until the second week. In children, symptoms are usually mild and those with severe outcomes more commonly had underlying medical conditions (e.g., obesity, severe genetic or neurologic disorders, congenital heart disease, sickle cell disease, diabetes, chronic kidney or lung disease, or a weakened immune system).

Consequences of Infection

Pneumonia occurs in COVID-19 cases that progress and worsen. A lower share of persons infected with Omicron appear to develop pneumonia or respiratory failure, and the risk of hospital admission or death with Omicron is approximately one-third that with Delta. In the pre-Omicron era, severe illness (more likely in persons with underlying medical conditions, older adults, or males) occurred in about 20% of cases and often resulted in lung or heart damage. Long COVID, a condition occurring in adults with a history of probable or confirmed SARS-CoV-2 infection, usually occurs 3 months from the onset of COVID-19 with symptoms that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms generally impact everyday functioning and include fatigue, shortness of breath, altered mental status, memory loss, and others (e.g., chest tightness or pain, gastrointestinal distress, joint and muscle pain, erratic heartbeat, headache, sleep disturbance, numbness and pain in the hands and feet, and dizziness). Symptoms may be a new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness and may fluctuate or relapse over time. No minimum number of symptoms is required for diagnosis, although symptoms involving different organ systems and clusters have been described. Persons of any age with underlying medical conditions are at increased risk of poor outcome or death. In the US since the beginning of the pandemic, approximately 75% of all deaths in diagnosed cases have been in persons 65 years and older; men have been consistently more likely to die by a factor of approximately 1.4. Over the past several weeks, approximately 3.1% of deaths occurred in persons younger than 50 years, and approximately 83.9% of deaths occurred in persons 65 years and older.

Testing

Two types of COVID-19 tests are available, a viral (PCR or antigen) test for current acute infection using respiratory samples (e.g., swabs of the nose, mouth, or throat) and an antibody (serology) test for a previous infection using blood samples (e.g., finger stick or blood draw). All tests occasionally have false-positive or false-negative results. Viral tests may have false-negative results, but available point-of-care antigen tests (done immediately in the clinic or at home) are only 70% to 80% as sensitive (ability to correctly detect those with disease) as PCR tests and are prone to false-positive results; symptom-free persons with a positive result should be considered presumptively positive until confirmed by a PCR test, and symptomatic persons with a negative result should seek follow-up care from their health care provider. The detection of antibodies does not necessarily indicate protective immunity and should not be used to detect acute infection when viral tests were negative or were not performed early after symptom onset.

In the US, over-the-counter rapid antigen tests for completely at-home, unobserved self-collection testing are readily available in stores and online nationwide, with many retailers lifting purchase limits. Most health insurers will cover 8 free tests per month per person, either at no cost at time of purchase or reimbursement (up to USD12) after purchase. Some other tests can be used to meet country entry requirements with the sample shipped overnight for testing and digital results returned to the traveler's device usually within the required 3 calendar days.

See Travel Restrictions and Advisories for specific entry testing requirements and Table 2: US Quarantine Guidance for the Management of Persons with a Close Contact or Returned from Travel for posttravel preventive measures, testing, and movement restrictions.

Need for Medical Assistance

Travelers who develop COVID-19 symptoms upon return from any travel or after any contact with a known case should observe respiratory hygiene, hand hygiene, and social distancing; wear a mask; and seek immediate medical attention, informing the provider of their travel history before presenting to a clinic or hospital.

Older or high-risk outpatients with mild disease and persons not up-to-date on vaccination or at high risk of progressing to severe disease and with a known exposure or a possible high-risk exposure should seek out a center that can administer intravenous monoclonal antibody therapy or postexposure prophylaxis as appropriate. Discuss any proposed oral medication with a provider and do not take any treatment medications unless prescribed. Usual antiviral drugs such as oseltamivir (Tamiflu) and acyclovir are ineffective. Care is supportive to relieve symptoms or to support vital organ functions in severe cases. Persons who develop any shortness of breath should contact a medical provider immediately.

Prevention

Nonvaccine

Social distancing, respiratory and hand hygiene, mask wear, and improved ventilation are key strategies for controlling COVID-19.

If a household includes persons at higher risk of a poor outcome (e.g., older adults or those with underlying medical conditions), then all persons in the household should take preventive measures as if they themselves are at higher risk and maintain as much physical distance as possible with the vulnerable household member.

Masks

Community mask or respirator wearing substantially reduces transmission, which has been shown in studies following the introduction of mask mandates within communities. Masks are designed to contain a person's fine virus-containing respiratory droplets and virus particles (termed source control) and also provide some protection (lower than source control effectiveness) from virus particles expelled by others. Respirators are designed to protect the wearer from virus particles (including SARS-CoV-2) and also contain a person's fine virus-containing respiratory droplets and virus particles.

US CDC recommends the wearing of the most protective mask that fits well and can be worn consistently. CDC has specifically clarified that loosely woven cloth masks provide the least protection, multilayered finely woven cloth masks offer more protection, well-fitting disposable surgical masks and KN95 respirators offer even more protection, and well-fitting National Institute for Occupational Safety and Health (NIOSH)-approved respirators (including N95s) offer the highest level of protection and implied a preference for N95 use when feasible and affordable. Note that "surgical N95s" are a specific type of respirator that should be reserved for health care settings.

For simplicity and ease of communication to the US public, Shoreland preferentially recommends the wearing of a NIOSH-approved N95 respirator (more than 95% particle filtration). Ensure each individual N95 respirator is clearly labeled with the TC-approval number, NIOSH name or logo, and N95 designation. Nearly all approved N95 respirators have headbands; those with ear loops without a connecting fastener for behind the head are likely counterfeit. For a list of NIOSH-approved N95 respirators, with the most highly regarded 3M brand respirators listed first, see https://www.cdc.gov/niosh/npptl/topics/respirators/disp_part/N95list1.html. For detailed performance characteristics of different NIOSH-approved N95 respirators and slightly less high performing masks that meet several other national and international standards (KN95, KF94, FFP2, N100, ASTM3), see https://docs.google.com/spreadsheets/d/1M0mdNLpTWEGcluK6hh5LjjcFixwmOG853Ff45d3O-L0/edit#gid=1976839763. N95 respirators are not approved for wear by children; for mask options see the link in aforementioned Google doc. N95 respirators

can be worn all day unless they get obviously soiled; however, they are hard to wear correctly for long periods, especially by nonmedical persons. Based on input from trusted Shoreland sources, the 3M Aura 9205+ respirator is considered to be the most comfortable N95 respirator to wear.

Correctly worn masks should cover the nose, mouth, and under the chin and should fit snuggly so that unfiltered air does not pass around the edges of the mask. Persons with a beard may have difficulty fitting a mask properly and should shave or trim their beard. Masks or respirators with an exhalation valve are not recommended because they release unfiltered air and do not prevent virus spread; they have been banned in some locations. Face shields are not recommended as a substitute for masks in the community.

Arguments from the airline industry that the interior of an airliner presents no different risk than other indoor environments do not consider the lack of choice, in-flight, to move away from a concerning person or surrounding environment or that air travel includes the crowed airport setting. Separately, if the engines are not running steadily, air circulation is unlikely to be adequate. Pushback from the gate is often not immediate, and the engines do not start until the tug disengages. Engines may also be shut down during a long runway delay. For long journeys, only demasking while sitting in a seat while the airplane is in the air provides an increased level of safety over no masking during any part of the journey.

The use of gloves is not recommended for the general public and persons in most nonhealthcare-related occupations because their use may lead to the misconception that hand hygiene (an important preventive measure) is unnecessary, thus increasing the risk of transmission by inadvertent touching of the face with contaminated gloves.

Vaccine

Primary COVID-19 vaccination remains a top priority and is recommended for all persons 5 years and older (including all pregnant women, women considering pregnancy, and breastfeeding women), regardless of history of previous COVID-19 (symptomatic or symptom free), including those with prolonged post COVID-19 symptoms. Booster doses (third and fourth doses) after completion of a primary series have been implemented in many countries (including the US) due to poor vaccine efficacy (VE) against hospitalization after just 2 doses against the current Omicron variant.

An mRNA COVID-19 vaccine dose (primary or booster) is preferentially recommended over the Janssen/J&J vaccine for the prevention of COVID-19 in persons aged 18 years and older based on data on thrombosis with thrombocytopenia syndrome (TTS) following vaccination with the Janssen/J&J vaccine. Increasing data indicate that the Moderna vaccine has both an efficacy and durability advantage over the Pfizer vaccine, and a single dose of Janssen/J&J vaccine is inadequate. A 2-dose mRNA vaccine primary series, feasible for use in most vaccine-eligible populations, should be initiated even if uncertainty exists about receipt of the second dose. Heterologous (mix-and-match) dosing is authorized, with leeway for personal choice and based on an assessment of individual benefits and risks by a health care provider.

The Pfizer vaccine (mRNA) is US FDA approved for use in persons 16 years and older and has an EUA for use in children aged 5-15 years. The Moderna vaccine (mRNA) is US FDA approved for use in persons 18 years and older, and authorization for use of persons younger than 18 years is expected in mid-June 2022. The Janssen/J&J vaccine is a last-resort vaccine for COVID-19 (due to an increased risk of thrombosis) and is restricted by US FDA to use only in persons aged ≥ 18 years for whom other FDA-authorized/approved COVID-19 vaccines are not accessible or clinically appropriate or in persons who elect to receive the Janssen/J&J vaccine because they would otherwise not receive a COVID-19 vaccine. These vaccines are also authorized for use in Australia, Canada, the EU, the UK, and several other countries.

Fully vaccinated primary schedules for healthy persons:

- ≥ 2 weeks following receipt of the second dose of an authorized 2-dose series vaccine
- ≥ 2 weeks following receipt of 1 dose of an authorized single-dose series vaccine
- ≥ 2 weeks following receipt of the second dose (active vaccination for all doses and not placebo must be confirmed) of a clinical trial vaccine within or outside the US for which vaccine efficacy has been independently confirmed by a US data and safety monitoring board or equivalent (e.g., Medicago).
- ≥ 2 weeks following receipt of the second dose of a heterologous (mix-and-match) combination of an authorized vaccine administered at least 21 days apart (a 4-day grace period applies, so a 17-day interval is acceptable); although a heterologous series is not recommended by US CDC, its use is increasingly common in many countries outside the US and is acceptable for the purposes of vaccination-record interpretation.
- US FDA-authorized/approved vaccines include Janssen/J&J, Moderna, and Pfizer; WHO Emergency Use Listing authorized vaccines include AstraZeneca (including Covishield), Bharat Biotech, CanSino, Janssen/J&J, Moderna, Novavax (including Covovax and Nuvaxovid), Pfizer, Sinopharm, and Sinovac.

- Exception for clinical trial vaccines outside the US: ≥ 2 weeks following receipt of the second dose (active vaccination for all doses and not placebo must be confirmed) of a qualifying vaccine candidate (i.e., Anhui Zhifei Longcom [Zifivax], Clover Biopharmaceuticals, Sanofi, Shifa Pharmed [COVIran Barekat], and Sinopharm). Vaccination documentation must include participation in a trial and the name of the vaccine product and date(s) administered.

All persons aged 5 years and older (including moderately or severely immunocompromised persons who received an additional primary dose and pregnant women) should preferentially receive a single first booster dose of an mRNA COVID-19 vaccine regardless of the US FDA-authorized/approved vaccine used for the primary series (including a mixed mRNA COVID-19 vaccine series). The booster interval after completing the primary series is based on the vaccine used for the primary series. The following persons should receive a second COVID-19 mRNA booster dose at least 4 months after the first booster dose: healthy immunocompetent persons aged ≥ 50 years and persons aged ≥ 12 years who are moderately-to-severely immunocompromised (e.g., those who have undergone solid-organ transplantation or have been diagnosed with a condition that has an equivalent level of immunocompromise).

The most common side effects following vaccination with an mRNA vaccine include injection-site reactions (pain, redness, and swelling), fatigue, headache, muscle pain, chills, joint pain, fever, nausea, malaise, and lymphadenopathy. These side effects may be milder in persons 65 years and older, and systemic side effects are more common after the second dose. Prevaccination use of acetaminophen (paracetamol) or ibuprofen to prevent postvaccination symptoms is not recommended. However, these medications may be used to treat local or systemic postvaccination symptoms. A harmless, delayed cutaneous hypersensitivity reaction ("COVID arm") with redness (diameter up to 15 cm [6 in]) and tenderness on the arm where the vaccine was administered may occur 5 to 9 days after vaccination, especially with the Moderna vaccine. Rare cases of myocarditis (inflammation of heart muscle) or pericarditis (inflammation of the sac surrounding the heart) have been reported within 21 days of the second dose of mRNA vaccination, mainly in males aged 12-29 years (peak incidence at age 16-17 years). Symptom onset is typically within 4 days of vaccination and includes chest pain, dyspnea, and palpitations; most cases have been mild.

Persons with pericarditis or myocarditis after a dose of an mRNA COVID-19 vaccine should not receive a subsequent dose of any COVID-19 vaccine; however, vaccination, preferably with an age-appropriate dose of the Janssen/J&J vaccine may be considered under certain circumstances once the heart has fully recovered and after informed discussion with a health care provider regarding personal risk of severe acute COVID-19 (e.g., age or underlying medical conditions), level of community transmission and risk of infection, timing of immunomodulatory therapies, and additional data on risk of occurrence and long-term outcomes following vaccination.

Persons with a weakened immune system who have been fully vaccinated (including with an additional primary dose and booster doses) have been shown to have poor responses to COVID-19 vaccination and should consider themselves as unvaccinated (in the community or for the purpose of travel) and should continue wearing a mask, observing social distancing, and avoiding crowds or poorly ventilated indoor spaces until otherwise advised by their provider.

Efficacy of the mRNA vaccines in pregnant women is similar to that in nonpregnant women. No safety issues have been identified in the aforementioned groups. No evidence exists that any of the COVID-19 vaccines affect pregnancy (including placenta development), future fertility, or the safety of breastfeeding for women or their infants.

Persons who have had a known COVID-19 exposure should not seek vaccination (first or second dose) until their quarantine period has ended to avoid potentially exposing health care personnel and other persons to SARS-CoV-2 during the vaccination visit. Those with prior COVID-19 should be vaccinated but should defer vaccination (first or second primary dose or booster doses) until isolation-discontinuation criteria has been met.; all vaccinees need to receive all recommended doses.

International and national guidelines may differ somewhat from the US guidance, based on private or public settings, local disease situation in terms of variants, type of vaccine received, and the age of the contact. See Masks for specific masking guidance for vaccinated and unvaccinated persons. All travelers (domestic, international, and cruise) should be up-to-date on COVID-19 vaccinations prior to travel, and persons up-to-date:

- Can travel domestically and internationally with low risk to themselves
- Should continue to wear a well-fitted mask in public indoor settings in areas with a high COVID-19 community level (https://www.cdc.gov/coronavirus/2019-ncov/your-health/covid-by-county.html) or as recommended for public transportation
- Should isolate at home for 5 days following a positive COVID-19 test result or if they are experiencing COVID-19 symptoms, and they may leave isolation if free of symptoms or free of fever for 24 hours or more without the use of fever-reducing medications and other symptoms have improved. They should continue to wear a mask around others for an additional 5 days.
- See Table 2: US Quarantine Guidance for the Management of Persons with a Close Contact or Returned from Travel.

Disinfection of Surfaces

Regular cleaning with household cleaners containing soap or detergent (physically removes the virus but does not kill it) is adequate to reduce the risk of SARS-CoV-2 spread in homes, businesses, and schools. Disinfection with a chemical product (kills the virus on surfaces), in addition to cleaning, is only recommended in indoor settings where a suspected or confirmed COVID-19 case was present within the previous 24 hours. From 24 to 72 hours since a case was present, cleaning alone is sufficient. When disinfection is recommended, use a diluted bleach solution or an EPA-approved household disinfectant effective against SARS-CoV-2 (https://www.epa.gov/pesticide-registration/list-n-disinfectants-coronavirus-covid-19).

Travel to Any Destination (Domestic or International) with Community Transmission

All travelers should ensure they are up-to-date on COVID-19 vaccination. US CDC recommendation groupings correspond to risk levels of special circumstances (all persons [even if up-to-date on vaccinations] should avoid travel); high (persons not up-to-date on vaccinations should avoid travel; persons who are at increased risk for severe illness from COVID-19 [even if up-to-date on vaccinations] should seek informed medical advice and consider delaying travel); moderate (persons who are at increased risk for severe illness from COVID-19 [even if up-to-date on vaccinations] should seek informed medical advice and consider delaying travel); low (no recommendation against travel is in place); and unknown level of COVID-19 (persons not up-to-date on vaccinations should avoid travel; persons who are at increased risk for severe illness from COVID-19 [even if up-to-date on vaccinations] should seek informed medical advice and consider delaying travel).

Travelers (especially those at higher risk of poor outcome, such as older adults and persons with underlying medical conditions) going to countries with community transmission should observe hand hygiene, masking (especially on public transportation and at transportation hubs), and social distancing and avoid contact with ill-appearing persons. Travelers should also avoid busy medical settings for all but serious or immediately life-threatening medical problems; the quality of infection-control standards at medical facilities in many affected areas is uncertain. Those at higher risk of poor outcome should consider postponing travel, especially if by airplane or cruise ship. Persons with a severely weakened immune system, such as transplant patients, those on high-dose immunosuppressive drugs, and those with malignancies have been shown to have poor responses to COVID-19 vaccination even if up-to-date on COVID-19 vaccination and should be considered as unvaccinated for the purpose of travel. Current influenza vaccination is recommended to decrease the risk of simple influenza being mistaken for COVID-19 upon return.

Travelers flying on commercial aircraft should also:

- Perform as many travel formalities as possible online before heading to the airport.
- Bring extra masks in case one gets soiled; some airlines may require medical-grade masks.
- Use the restroom before boarding the aircraft to minimize the need to use the lavatory on board.
- Avoid speaking with strangers and going to the crowded gate earlier than necessary.
- Move about the cabin only as necessary and wear a mask when doing so.
- Avoid congregating while waiting for the lavatory and wear a mask while inside.
- Avoid unmasking while your neighbor unmasks.
- Remain seated as long as possible after arrival at the gate to avoid the mass exodus of passengers from the aircraft.

Travelers on US cruise ships should expect:

- Cruises to mostly be limited to vaccinated persons.
- Testing prior to embarkation and possibly prior to disembarkation.
- Self-quarantine after disembarkation in the US for travelers not up-to-date on vaccination.
- Immediate on-board quarantine for many days or disembarkation at the next port after a positive on-board test.

In the Workplace

To help prevent workplace exposure to acute respiratory illnesses, including COVID-19 and influenza, employees who become ill at work should be immediately isolated from other employees, sent home, and tested for influenza and COVID-19. Employees that are at higher risk of poor outcome from COVID-19 (e.g., those who are older or with underlying medical conditions) should self-identify to the employer so that steps can be taken to reduce their risk of exposure; options include working from home or performing duties that minimize contact with others.

COVID-19–vaccinated employees with a close contact or returned from travel may return to work immediately; unvaccinated employees may return to work once ≥ 5 days have passed since their close contact or return from travel; see Table 2: US Quarantine Guidance for the Management of Persons with a Close Contact or Returned from Travel.

Regardless of COVID-19 vaccination status, symptomatic employees (with confirmed or suspected COVID-19) and asymptomatic employees (who never had symptoms but had laboratory-confirmed COVID-19) may return to work once ≥ 5 days have passed from the date of symptom onset or the date of positive test specimen collection; see Table 1: US Isolation Guidance for the Management of Suspected or Confirmed COVID-19 Cases. Symptomatic employees with suspected or confirmed influenza may return to work once they are free of fever for ≥ 24 hours (without the use of fever-reducing medications); those who never developed a fever may return to work 5 days after symptom onset.

Testing and Management of Persons with COVID-19 or with an Exposure to COVID-19

Persons may be at risk of exposure to SARS-CoV-2 through a known close contact with a COVID-19 case or an unrecognized close contact during travel because of the large number of persons from many regions coming together in densely populated environments.

A negative test result in a person with a known exposure suggests no current evidence of infection at the time the sample was collected; results could change if tested again in 1 or more days. The person should follow the isolation guidelines in Table 1, and confirmatory nucleic acid amplification test (NAAT; e.g., PCR or other highly accurate test) testing should be performed; however, serial antigen testing every 2 to 3 days while symptomatic is an alternative. Infectivity following a positive test result decreases with time: 5 days (31%), 7 days (16%), and 10 days (5%) and transmission can be further reduced by relying on masks for days 6 through 10 following a 5-day isolation period.

Isolation for Persons Who Are Symptomatic or Tested Positive for COVID-19

Persons (regardless of vaccination status) who develop fever or respiratory symptoms or test positive following domestic community exposure or travel to countries with community transmission should self-isolate; observe respiratory hygiene, hand hygiene, and social distancing; wear a well-fitting mask; and present for testing.

Table 1: US Isolation Guidance for the Management of Suspected or Confirmed COVID-19 Cases
Day 1 of isolation is the first full day after symptom onset or the first full day after test specimen collection.

Symptom Status	Movement Restrictions	Ending Isolation and Testing	Preventive Measures through Day 10
Regardless of vaccination status: Tested positive for COVID-19 (regardless of symptoms) or has mild symptoms consistent with COVID-19.[1]	Remain at home and isolate away from others for at least 5 full days. Do not travel for 10 days after symptom onset or test-specimen collection date, even if recovered from COVID-19 within the past 90 days or up to date on COVID-19 vaccination.	End isolation after at least 5 full days[2] only if: • remained asymptomatic following a positive test result ***or*** • initially mildly symptomatic and now free of fever for ≥ 24 hours (without the use of fever-reducing medications) and symptoms have improved[3] If symptoms develop after testing positive, the 5-day isolation period should start over (day 1 is the first full day after symptom onset). Perform a rapid antigen COVID-19 test toward the end of the 5-day isolation period if a test is available and if desired. Most US experts recommend obligatory testing after 5 days. If the test result is negative, isolation can be ended but continue to follow the preventive measures through day 10. If the test result is positive, continue to isolate until day 10.	Wear a well-fitting mask around others, including at home and in public. Do not go to places where a mask cannot be worn (e.g., restaurants and some gyms) and avoid eating around others at home and at work. Do not travel for 10 days after symptom onset or test specimen collection date. If unable to wear a mask around others, isolate for a full 10 days. Avoid contact with vulnerable persons and places that house vulnerable populations.

1. Fever (≥ 38°C [100.4°F] for the general population or ≥ 37.8°C [100°F] for HCWs, using an oral thermometer), dry cough, breathlessness, new loss of the senses of smell and taste, chills, myalgia, headache, sore throat, vomiting, diarrhea.
2. Persons with severe illness or a weakened immune system should isolate for at least 10 full days (up to 20 days may be warranted after consultation with an infectious disease expert).
3. Loss of taste and smell (uncommon with Omicron) may persist for weeks or months after recovery and should not delay the end of isolation.

Quarantine for Persons with a Close Contact or Returned from Travel

Persons who develop fever or respiratory symptoms within 14 days of international or domestic travel or other direct or community exposure should self-isolate; observe respiratory and hand hygiene and social distancing; wear a mask; and contact

public health authorities (or telephone ahead before presenting to a hospital).

Table 2: US Quarantine Guidance for the Management of Persons with a Close Contact or Returned from Travel
Day 1 of quarantine is the first full day after the close contact or return from travel.

Vaccination Status	Movement Restrictions and Testing	Monitoring	Preventive Measures through Day 10
Not up-to-date on COVID-19 vaccinations[1] ***or*** not recently recovered from COVID-19[2] and had a close contact or returned from travel (domestic, international, or cruise)	Remain at home and quarantine away from others for at least 5 full days whether tested on day 5 or not (except for domestic travel). If unable to get tested, quarantine can be ended after day 5 if still asymptomatic. If unable to quarantine, follow the preventive measures through day 10. Do not travel during the 5-day quarantine period. ***Close contact:*** Get tested on or after day 5. ***Domestic travel:*** Get tested if travel involved situations with greater risk of exposure (e.g., being in crowded places without wearing a well-fitting mask). ***International or cruise travel:*** Get tested 3-5 days after arrival. If the test result is negative, quarantine can be ended but continue to follow the preventive measures through day 10. If the test result is positive, isolate immediately and follow isolation guidelines.	Self-observe for symptoms for 10 days after close contact or return from travel. If symptoms develop, isolate immediately and get tested. Remain at home and continue to wear a well-fitted mask around others until test results are known.	Wear a well-fitted mask around others, including at home and in public. Avoid places where a mask cannot be worn (e.g., restaurants and some gyms) and avoid eating around others at home and at work. Avoid travel on days 6-10; if travel during this period is necessary, get tested at least 5 days after the last close contact (test result must be negative) and wear a well-fitting mask when around others for the entire duration of travel. If the test result was negative, but a mask cannot be worn, do not travel. If testing cannot be done, do not travel. Avoid contact with vulnerable persons and places that house vulnerable populations. If unable to wear a mask around others, quarantine for a full 10 days.
Up-to-date on COVID-19 vaccinations[3] ***or*** recently recovered from COVID-19[4] and a close contact or returned from travel (domestic, international, or cruise)	No quarantine is required. ***Close contact:*** Get tested on or after day 5, including before any travel even if still asymptomatic. ***Domestic travel:*** Get tested if travel involved situations with greater risk of exposure (e.g., being in crowded places without wearing a well-fitting mask). ***International or cruise travel:*** Get tested 3-5 days after arrival. If the test result is positive, isolate immediately and follow isolation guidelines.		

1. Aged 5 years and older and completed a COVID-19 primary vaccination series but has yet to receive recommended booster doses for which they are eligible; aged 18 years and older and received the single-dose Janssen/J&J vaccine (completing the primary vaccination series) more than 2 months ago and has yet to receive a recommended first booster dose; or any person that remains unvaccinated.
2. Confirmed COVID-19 by a viral test more than 90 days ago.
3. Persons aged ≥ 5 years are up-to-date when they have received all doses in the primary series and all booster doses recommended for them, when eligible; number of boosters (either 1 or 2) depends on age and immune status.
4. Confirmed COVID-19 by a viral test within the past 90 days; if recovered and asymptomatic, testing is not necessary.

Persons living with but unable to remain separated from a person(s) with COVID-19 are considered to have ongoing exposure/close contact and must take additional precautions to limit the spread of SARS-CoV-2. The person with COVID-19 and everyone they live with should wear a well-fitting mask inside the home. If possible, only 1 person should be the caregiver for the person with COVID-19 to limit the number of close contacts. The last day of exposure/close contact is the last day of the isolation period for the most recently infected person in the home and post isolation testing, quarantine, and preventive measures are calculated from the first day ***after*** the end of isolation. Recommendations for ongoing exposure to 1 or more persons in the home depend on the exposed person's vaccination or COVID-19 recovery status.

Not up-to-date on COVID-19 vaccinations:

- Remain at home and quarantine and wear a well-fitted mask throughout the isolation period of the most recently infected person in the home.
- Continue to quarantine an additional 5 days beginning the day ***after*** the end of isolation for the most recently infected person in the home.
- Get tested at least 5 days ***after*** the end of isolation for the most recently infected person in the home. If the test result is negative, quarantine can be ended but continue to wear a well-fitted mask around others, including at home and in public for 10 days after the end of isolation; see Table 2 for additional preventive measures. If the test result is positive or COVID-19 symptoms develop, isolate immediately and follow isolation guidelines in Table 1.

Up-to-date on COVID-19 vaccinations:

- No quarantine is required.
- Wear a well-fitted mask throughout the isolation period of the most recently infected person in the home.
- Get tested at least 5 days after the first exposure.
- Get tested again at least 5 days ***after*** the end of isolation for the most recently infected person in the home. If the test result is positive or COVID-19 symptoms develop, isolate immediately and follow isolation guidelines in Table 1.
- Continue to wear a well-fitted mask for 10 days ***after*** the end of isolation for the most recently infected person in the home; see Table 2 for additional preventive measures.

Recently recovered from COVID-19 within the past 90 days:

- No quarantine is required.
- Wear a well-fitted mask in public for 10 days after exposure.
- Self-observe for COVID-19 symptoms and isolate immediately; follow isolation guidelines in Table 1. Consult with a health care provider for testing recommendations if new symptoms develop.
- See Table 2 for close contact quarantine recommendations if recovery was more than 90 days ago.

Special Considerations

Travel Restrictions and Advisories

Travel recommendations range from avoiding nonessential travel to avoiding all travel to certain countries. Different levels of travel restrictions are in effect in countries. Entry procedures are still in place in most countries. Entry screening—using predeparture online or written arrival questionnaires, fever screening, or visual inspection—at international ports of entry is nearly universal. In most cases, anyone with fever and respiratory symptoms and a history of any international travel within 14 days prior to arrival may be detained and isolated or placed in self-isolation. Persons without symptoms but with a similar travel history may be placed in quarantine or self-quarantine, depending on where the exposures may have taken place. Required documentation of vaccination is variable by country, but for most, a nationally recognized vaccine card (e.g., US CDC COVID-19 Vaccination Record card, ***International Certificate of Vaccination or Prophylaxis [ICVP]***) is acceptable; if proof of vaccination is not accepted, a locally administered COVID-19 test may be required. Some countries may only accept specific vaccines (e.g., US FDA-authorized/approved, EMA-authorized, or on the WHO Emergency Use List) and/or specific vaccines received in specific countries and may also require the traveler to have received the final dose of vaccine at least 2 weeks prior to travel; travelers should check country-specific requirements. Travelers should verify requirements with their travel health provider, airline, or embassy before travel.

At-home sample collection kits can be shipped overnight for PCR testing, and digital results are returned to the traveler's device usually within the required 3 calendar days. Ensure a digital or hard copy result will be available in time to present at the airport. A physical provider visit is not necessary, but a short online questionnaire (for each person requesting a kit) may be required, and upfront payment in full is usually required to receive the testing kit.

Interest in digital health passports for travel has diminished, and development has largely been discontinued. The EU Digital COVID Certificate (DCC) has been the only successful tool, but few EU countries have pretravel testing requirements at present (although most retain proof of vaccination requirements for entry). Development of the IATA Travel Pass has ceased but remains available for download on any smartphone device to electronically display a QR code verifying COVID-19 vaccination status. Most non-EU countries are requiring arriving travelers to use country-specific digital health passports without any standardization. Several national apps that generate smartphone QR codes remain and have variable acceptance at ports of entry.

The SMART Health Card, an initiative in Canada and the US, is a printed or digitally displayed QR code that may be used to show proof of COVID-19 vaccination. The QR code must be issued by an organization that is part of the CommonTrust Network

(https://www.commontrustnetwork.org/verifier-list) or the Vaccination Credential Initiative (https://vci.org/issuers). Participants in these networks include pharmacies (CVS, Rite Aid, Walgreens, and Walmart), an increasing number of hospital health systems, and several state vaccine registries. The QR code may be retrieved from an online portal belonging to one of the above-mentioned organizations or by requesting the code from the organization via email or mail. The QR code may be scanned into the Health app of smartphones with Apple iOS15.

As of midnight on June 12, 2022, a negative COVID-19 test result is no longer a requirement of entry for US-bound air travelers.

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