Travax Traveler Report

Itinerary

Round Trip: United States → South Africa → United States

Health Concerns Summary

The following may pose a risk or require preventive measures based on this itinerary. See the report sections below for details.

- Vaccine-Preventable Diseases: hepatitis A, hepatitis B, influenza, measles, mumps, rubella, rabies, typhoid fever
- Malaria
- Other Diseases: anthrax disease, arboviral infections, helminths, melioidosis, rickettsial infections, schistosomiasis, sexually transmitted infections, travelers' diarrhea, tuberculosis, viral hemorrhagic fevers, West Nile virus

During the COVID-19 pandemic, routine vaccination of infants and young children aged ≤ 24 months is a top priority in the context of well-child care and should be prioritized when possible; vaccination of older children may still be conducted or postponed to a later date depending on community circumstances and resources.

COVID-19

South Africa

At least 1 vaccine dose: 4.8%

Daily new cases: 22,552 (7-day rolling average)

Daily new cases / 100,000: 39

Daily new deaths: 396 (7-day rolling average)

Daily new deaths / 100,000: 0.7

14-Day Case Change: 82%

Updated every Thursday; last updated July 8, 2021. Nationally, daily case numbers (7-day average) have increased since April 8, 2021, to a record peak of more than 19,700 on July 7, following a nadir of 770 cases on April 7. Daily case numbers (7-day average) are highest in Gauteng (> 11,400) and Western Cape (> 2,200 provinces. Previous national peaks/nadirs occurred on July 19/October 1, 2020 (12,600/1,300 cases) and January 11/April 7, 2021 (19,000/770 cases).

COVID-19 Travel Restrictions

Last change: July 6, 2021

Proof of vaccination is neither required nor usable to replace any other entry requirements for this country.

Ports of Entry/Exit

Maritime ports are closed to foreigners.

Entry Restrictions

Nationals and residents of South Africa may enter.

Foreigners may enter.

Asymptomatic Arrivals

Nationals, residents, and foreigners arriving from any country (including passengers transiting South Africa) must undergo COVID-19 antigen testing upon arrival at traveler's expense, unless they have a clinic- or laboratory-processed negative COVID-19 PCR result from a test taken within 72 hours before boarding their final flight to South Africa.

Travelers must download a government-designated smart phone app.

COVID-19 Travel Recommendations

Shoreland Recommendation

All persons (even if vaccinated) should avoid nonessential travel to this country. All persons who must travel should be vaccinated prior to their trip and follow destination recommendations for masking and social distancing. Unvaccinated and significantly immunocompromised travelers should always mask and social distance in public settings and avoid all crowded situations. This recommendation is based on aggregate national data, available medical care, and access to testing.

Both the beta (B.1.351) and delta (B.1.617.2) variants are known to be present.

Gauteng Province has higher risk than the national average.

CDC Recommendation

All persons (even if vaccinated) should avoid travel to this country. All persons who must travel should be vaccinated prior to their trip and follow destination recommendations for masking and social distancing. Unvaccinated travelers should always mask and social distance in public settings and avoid all crowded situations.

Yellow Fever

Requirement Information (for entry, per WHO)

Is yellow fever vaccine an official entry requirement for this itinerary?

NO. An official certificate showing vaccination is not required for entry by any country on the entered itinerary sequence, but view full details and see "YF Requirement Table" if there are additional transited countries.

Visa application: Proof of YF vaccination may be required for certain visa applicants. Travelers should contact the appropriate embassy or consulate with questions and, if it is required for their visa, carry the YF certificate with their passport on the day of travel.

Yellow Fever Requirement Table for this Itinerary
The following values result in the "NO" requirement result shown above (based on a round trip with United States as the home country):

Yellow Fever Requirement Table				
Country	**Transm. Risk**	**Required if Coming From**	**Applies to Ages**	**See Note**
UNITED STATES	No	None	None	
SOUTH AFRICA	No	Country with Transm. Risk	≥ 1 year	2

Note 2: Airport transit stops (no exit through immigration checkpoint) in a "Required if Coming From" country may impact the YF requirement. Please refer to the Individual Country Requirements information presented below to review this country's requirement and evaluate whether a traveler's transit stops may change the YF requirement result.

Individual Country Requirements

Effective July 11, 2016, the ICVP for yellow fever vaccination will be valid for life, and this validity applies to existing and new certificates for the purposes of international travel. Revaccination or a booster dose of YF vaccine cannot be required of international travelers as a condition of entry into any country regardless of the issued ICVP date; validity begins 10 days after the date of vaccination. On new ICVPs, "life of person vaccinated" should be entered in the validity space on the certificate. Whether recognition of the new lifetime validity regulation by personnel at the point of entry in countries with previous 10-year validity policies will occur immediately is uncertain.

South Africa

A vaccination certificate is required for travelers aged ≥ 1 year coming from countries with risk of YF transmission. This also applies to airport transit stops (no exit through immigration checkpoint) longer than 12 hours in risk countries.

Recommendation Information (for health protection)

Is yellow fever vaccine a recommended protective measure for this itinerary?

NO. Vaccination is not necessary as a protective measure for any country on this itinerary.

Travel Vaccination Recommendations

Hepatitis A

South Africa

Recommended for: all travelers.

Typhoid fever

South Africa

Recommended for: most travelers, especially those with adventurous dietary habits; those without consistent access to safe food and water; those with prolonged stays; and those traveling outside common tourist packages and other prearranged fixed itineraries, especially in rural areas.

Consider for: all risk-averse travelers desiring maximum pretravel preparation.

Influenza

South Africa

Risk exists from May through September, although off-season transmission can occur.

Recommended for: all travelers during transmission season due to demonstrated influenza risk in this group.

Vaccination Considerations

South Africa

Travelers not already immunized with the currently available vaccine formulation should be vaccinated. Travelers immunized with the current formulation more than 6 months earlier should consider revaccination because immunity may have declined. Consider baloxavir or oseltamivir as standby therapy, especially for those who are at high risk for complications from influenza or inadequately vaccinated.

Hepatitis B

South Africa

Recommended for: all health care workers; adventure travelers; travelers with high potential to seek medical or dental care in local facilities; those with prolonged stays; those with frequent short stays in this or other high- or intermediate-risk countries; those with possible contact with contaminated needles (e.g., from acupuncture, tattooing, or injection-drug use) or possible sexual contact with a new partner during the stay.

Consider for: risk-averse travelers with short stays desiring maximum pretravel preparation.

Travelers should observe safer-sex practices and blood/bodily fluid precautions.

Measles, mumps, rubella

South Africa

Indicated for those born in 1957 or later (1970 or later in Canada and UK; 1966 or later in Australia) without evidence of immunity or of 2 countable doses of live vaccine at any time during their lives. Also indicated for those born before 1970 (in Canada) without evidence of immunity or previous vaccination with 1 countable dose of measles-containing vaccine.

Rabies

South Africa

Preexposure vaccination:

Significant risk from dogs exists throughout the country, especially in Eastern Cape, Free State, KwaZulu-Natal, Limpopo, Mpumalanga, and North West provinces.

Recommended for prolonged stays: all travelers and expatriates, with a priority for young children.

Recommended for short stays: adventure travelers, hikers, cyclists, and cavers; travelers going to locations more than 24 hours' travel from a reliable source of human rabies immune globulin and rabies vaccine for postexposure treatment; animal workers

(such as veterinarians and wildlife professionals); all travelers likely to have contact with bats.

Consider for: risk-averse travelers with short stays desiring maximum pretravel preparation.

Postexposure prophylaxis considerations:

Dog, other terrestrial mammal (including cat, fox, jackal, and mongoose (including meerkat]), and bat bites or scratches should be taken seriously, and postexposure prophylaxis should be sought even by those already vaccinated.

Routine Vaccination Recommendations (adults only)

Tetanus, diphtheria, pertussis

Due to increasingly frequent pertussis outbreaks worldwide, all travelers should receive Tdap vaccine every 10 years, assuming they previously received an adequate primary series. Those who received Td or TT for their most recent booster should receive an immediate dose of Tdap, regardless of the interval since the last tetanus dose.

Pneumococcal

Recommended for adults aged ≥ 65 years and all adults with chronic disease or immunocompromising conditions.

Varicella

Indicated for all persons born outside the US or born in the US in or after 1980, except for persons with an adequate vaccination history (2 lifetime doses), reliable evidence of previous infection, or laboratory confirmation of immunity.

Malaria

Malaria General Information

South Africa

General malaria information: predominantly *P. falciparum*. Transmission occurs throughout the year and is highest from September through May, particularly from January through April.

Malaria Recommendations

South Africa

Chemoprophylaxis is recommended for all travelers: certain districts in Limpopo, Mpumalanga, and KwaZulu-Natal provinces, including Kruger National Park and neighboring game reserves; all cities, towns, and parks within these areas except the central urban area of Nelspruit.

Chemoprophylaxis is recommended for certain travelers (see Issues to Consider *box)*: certain districts in Limpopo and KwaZulu-Natal provinces; all cities, towns, and parks within these areas except Richards Bay.

Insect precautions only are recommended (negligible transmission is reported): the central urban area of Nelspruit; throughout certain districts in Limpopo Province; rural areas of certain districts in Mpumalanga and KwaZulu-Natal provinces.

No preventive measures are necessary (no evidence of transmission exists): the cities of Pretoria, Johannesburg, Cape Town, Durban, Richards Bay, and all other major cities and resort areas; all other areas not mentioned above.

Malaria Prophylaxis

Drug choice depends on personal factors discussed between the traveler and medical provider. No preventive measure is 100% effective. Immediate medical attention is necessary for fever or influenza-like illness within 3 months after travel in a malaria risk area. Include mention of travel history.

South Africa

Preventive measures: Travelers should observe insect precautions from dusk to dawn in areas with any level of transmission. Atovaquone-proguanil (Malarone or generic), doxycycline, mefloquine, and tafenoquine are protective in this country. G6PD testing is required prior to tafenoquine use.

Issues to Consider	

Factors favoring chemoprophylaxis	*Factors against chemoprophylaxis*
• Adventure travel • Risk-averse and vulnerable travelers • Areas subject to infrequent epidemics • Immigrants visiting friends and relatives • Flexible itineraries • Travel longer than 1 month • Unreliable medical expertise and/or treatment drugs at destination	• Air-conditioned hotels only • Urban areas only • Non-transmission season • Minimal exposure from dusk to dawn • Travel shorter than 3 days
For more information, see *Technical Explanation of Malaria Mapping*.	

Travelers' Diarrhea

South Africa

Moderate risk exists throughout the country, with minimal risk in deluxe accommodations. Food and beverage precautions may reduce the likelihood of illness.

Travelers should carry loperamide for self-treatment of diarrhea and azithromycin to add if diarrhea is severe.

Other Concerns

Chikungunya

South Africa

Negligible risk may exist, but current epidemiologic data are unavailable.

Marine hazards

South Africa

Risk from jellyfish exists, including highly venomous South African box jellyfish (limited from the border with Namibia to Port Elizabeth) and Portuguese man-of-war. Travelers wading, launching boats, or fishing are especially at risk. Risk from stonefish and sea urchins exists. Risk from coral is limited to the northern areas of KwaZulu-Natal Province. Travelers should seek out and heed posted warnings and refrain from bathing at unmarked, unpatrolled beaches.

Tuberculosis

South Africa

Tuberculosis (TB) is common in all developing countries. TB incidence in this country is greater than 100 cases per 100,000 population (the highest risk category). According to WHO, this is a high-burden multidrug-resistant TB country.

A documented interferon gamma release assay or, alternatively, a tuberculin skin test is recommended before departure and after return for all travelers planning to stay more than 3 months and for stays longer than 1 month for health care workers and those with anticipated exposure in prisons, homeless shelters, refugee camps, or shanty towns.

Travelers should avoid crowded public places and public transportation (whenever possible). Domestic household workers should be screened for TB.

Schistosomiasis

South Africa

Significant risk exists in northeastern and eastern coastal regions, including in untreated water around game parks and inland resorts. Travelers should avoid freshwater exposure in risk areas.

Rickettsial infections

South Africa

Significant risk of infection caused by *Rickettsia africae* exists in bush areas throughout the country, including Kruger National Park. Risk is especially high for hikers, hunters, and safari participants. Transmission occurs throughout the year, with highest activity from November through April. Travelers should observe tick precautions; however, DEET's effectiveness against the tick that transmits this disease wanes after 2 hours.

Low risk of infection caused by *Rickettsia conorii* exists in urban and rural areas throughout the country. Travelers should observe tick precautions.

Air pollution

South Africa

Air quality may be variable throughout the year. Annual mean particulate matter concentrations are unhealthy in select cities.

Johannesburg or Pretoria: When air quality worsens, travelers should reduce prolonged or heavy outdoor exertion; those with lung disease or at the extremes of age should avoid prolonged or heavy outdoor exertion.

Sexually transmitted infections

South Africa

HIV is estimated to be present in 19% of the adult population (putting this country in the top tier of all countries) and is estimated to be present in 58% of sex workers. Travelers should be clearly informed of STI concepts and risks for HIV transmission. Travelers expected to engage in very high-risk behaviors should consider short-term preexposure prophylaxis with Truvada.

Arboviral infections

South Africa

Low risk of Rift Valley fever exists in rural and agricultural areas, mainly in the central plateau (especially in Eastern Cape and Free State provinces). Transmission occurs following heavy seasonal rains. Travelers in affected areas should observe daytime insect precautions and avoid direct contact and consumption of animal products, including tissue, blood, improperly cooked meat, and unpasteurized dairy products.

West Nile virus

South Africa

Low risk exists in rural and peri-urban areas throughout the country, mainly in Gauteng Province. Transmission occurs from October through April. Travelers with significant outdoor exposure in affected areas should observe insect precautions from dusk to dawn.

Viral hemorrhagic fevers

South Africa

Negligible risk of Crimean-Congo hemorrhagic fever exists throughout the country, mainly in Free State, Northern Cape, and Western Cape provinces. Transmission occurs throughout the year, with highest activity from December through March. Tick precautions are recommended. Travelers should avoid contact with infected livestock and animal tissue/blood.

Melioidosis

South Africa

Sporadic cases have been reported in KwaZulu-Natal Province. Travelers should consider wearing proper footwear in damp environments.

Helminths

South Africa

Low risk exists for soil-transmitted helminths in urban and rural areas and is presumed to have widespread distribution. Travelers should follow strict food and beverage precautions and wear appropriate footwear.

Anthrax disease

South Africa

Low risk exists throughout most of the country, mainly in Northern Cape Province and in Kruger National Park. Travelers should avoid direct or indirect contact with livestock, animal products, and animal carcasses or hides, as well as consumption of meat that is raw, undercooked, or unlikely to have been inspected.

South Africa

Medical Summary

General Information

South Africa is a developing nation classified as upper middle income. Located at the southern tip of Africa (south of Botswana and Namibia), the climate is extremely diverse with classifications that range from humid temperate (no dry season) to dry (arid).

Medical Care

A high level of private medical care (comparable to that in industrialized countries) is available in major cities. Medical care throughout the rest of the country is inadequate and may not meet international standards.

For a private ambulance anywhere in the country, call Netcare 911 at [+27] 082-911 or ER 24 at [+27] 084-24. For a public ambulance anywhere in the country, call 10177. The national medical emergency number is 10111.

Hyperbaric chambers for diving injuries are located in, but not limited to, the following cities: Cape Town, Durban, Johannesburg, and Pretoria.

Upfront payment by cash or credit card, up to the total of all anticipated charges, is generally required by hospitals catering to foreigners prior to services or treatment. Upfront payment of other than a modest deposit may be waived by hospitals that have existing cashless agreements with at least some major international insurance providers.

Consular Advice

The material below includes information from the US Department of State (DOS), the UK Foreign, Commonwealth & Development Office (FCO), Global Affairs Canada (GAC), and Australia's Department of Foreign Affairs and Trade (DFAT), as well as from additional open-source material. Standard safety precautions that apply to all international travel can be found in the Library article Safety and Security*.*

Terrorism Risk

Risk of attack by transnational terrorist groups exists throughout the country. Targets may include domestic and international organizations and businesses; public places and events, including those frequented by tourists; and transportation systems.

Crime

High risk of violent crime (armed robbery, sexual assault, carjacking, and murder) exists throughout the country, especially in the central business districts of major cities, in townships on the outskirts of major cities, in airports, and on hiking trails.

High risk of petty crime exists throughout the country, including areas frequented by foreigners, especially in Johannesburg, Pretoria, Durban, and other cities (particularly in the central business districts), in crowded areas (including sporting events, restaurants, and bars), and on or near public transportation.

Theft of items from checked baggage in airports is common.

Theft of valuables from unattended vehicles and accommodations is common.

Scams involving false identity (such as criminals posing as police officers) have been reported.
Risk exists of robberies and/or assaults occurring after consuming intentionally drugged food or drink; tourists are frequently targeted.

Civil Unrest

Protests and demonstrations frequently occur throughout the country and have the potential to turn violent without warning. Bystanders are at risk of harm from violence or from the response by authorities. Disruption to transportation, free movement, or the ability to carry out daily activities may occur.

Water Safety

Hazardous water conditions (including currents, tides, and undertows) may occur. Heed posted warnings, and avoid beaches that are not patrolled. Do not swim alone or after dark, and do not walk on any beach after dark.

Rent water sports equipment from reputable operators. Scuba dive only with personnel certified by PADI or NAUI, and use equipment only from PADI- or NAUI-certified dive operators.

Other Safety Threats

Risk exists for fatal wildlife attacks on safaris and in game parks and reserves. Travelers should closely follow park regulations, always maintain a safe distance from wildlife, and should not exit vehicles or protected enclosures.

Transportation Safety

Significant risk of traffic-related injury or death exists. The road traffic death rate is more than 24 per 100,000 population, the highest risk category. Carefully assess the safety of transportation options before any road travel.

Speed laws are poorly enforced.

Seat belt laws are poorly enforced.

Drunk driving laws are poorly enforced.

Structural standards for vehicles may not meet international standards.

Airline Safety

U.S. Federal Aviation Administration has determined that the civil aviation authority of this country oversees its air carriers in accordance with minimum international safety standards.

Consular Information

Selected Embassies or Consulates in South Africa

- United States: [+27] 12-431-4000; za.usembassy.gov
- Canada: [+27] 12-422-3000; www.canadainternational.gc.ca/southafrica-afriquedusud
- United Kingdom: [+27] 12-421-7500; www.gov.uk/world/organisations/british-high-commission-pretoria
- Australia: [+27] 12-423-6000; www.southafrica.embassy.gov.au

South Africa's Embassies or Consulates in Selected Countries

- In the U.S.: www.saembassy.org
- In Canada: www.southafrica-canada.ca
- In the U.K.: southafricahouseuk.com
- In Australia: www.sahc.org.au

Visa/HIV Testing

HIV testing is not required to obtain a tourist, work, or residence visa.

Basic Protective Measures

Many travel-related health and safety problems can be significantly reduced through appropriate behavior by the traveler. Risk can be minimized by adherence to the following measures.

Health

Insect Precautions

- Wear clothing that covers as much skin as practicable.
- Apply a repellent to all exposed, nonsensitive areas of the body. Frequent application ensures continuous protection. When both an insect repellent and sunscreen are used, apply the sunscreen first, let it dry completely, then apply the repellent. Very limited data suggest that DEET-containing repellents reduce a sunscreen's stated SPF UVB protection by as much as one-third, requiring more frequent sunscreen application. Sunscreens do not appear to reduce the efficacy of insect repellents (DEET or picaridin) but may increase the absorption of DEET (but not picaridin) through the skin, even when the sunscreen is applied first as recommended. Never use a combination sunscreen/insect repellent product (e.g., Avon Skin Soft Bug Guard, Bull Frog Mosquito Coast Sunscreen with Insect Repellent, or Sunsect).
- Use a repellent containing DEET (N,N-diethyl-meta-toluamide; 30%–35% concentration) or, alternatively, a repellent containing picaridin (20% concentration or greater for tropical destinations; also known as icaridin). Picaridin, unlike DEET, has a pleasant smell and does not dissolve plastic materials.
- Determine the time of day and type of insects to be avoided when choosing when to apply repellent.
    - *Applicable to malaria risk countries:* Mosquitoes that transmit malaria (*Anopheles* spp.) are generally night biters with activity between dusk and dawn.

- *Applicable to West Nile virus and Japanese encephalitis risk countries:* Mosquitoes that transmit these diseases (*Culex* spp.) are generally night biters but have peak activity at dusk and again at dawn.
- *Applicable to chikungunya, dengue, yellow fever, or Zika risk countries:* Mosquitoes that transmit these diseases (*Aedes* spp.) can bite throughout the day but have peak activity during early morning and late afternoon and evening.
- *Applicable to leishmaniasis risk countries:* Sandflies that transmit leishmaniasis are active from dusk to dawn, but in forests and dark rooms they may bite during the daytime if disturbed.
- *Applicable to African trypanosomiasis risk countries:* DEET is generally ineffective. Wear light-colored (not blue), heavyweight clothing in risk areas.

- Treat outer clothing, boots, tents, and sleeping bag liners with permethrin (or other pyrethroid) when traveling in an area of very high risk for mosquito-borne or tick-borne diseases.
- Sleep under a permethrin-impregnated bed net when at high risk of malaria or Japanese encephalitis if not sleeping in a sealed, air-conditioned room. Regularly check the net for rips and tears and keep it tucked in around the bed at all times. Ensure that all open windows have insect screens.
- Use spatial repellent products in the form of an aerosol spray, vaporizer device, or smoldering coil. These products usually contain a pyrethroid (e.g., metofluthrin or allethrin).
- Perform a full body check for ticks at least once a day when staying in areas where tick-borne disease is a risk.

Safe Food and Beverages

- Wash hands with soap before eating and after using the toilet. If water is not available, use disposable antiseptic wipes or an alcohol-based hand sanitizer.
- Avoid food from street vendors or market stalls.
- Choose establishments that are known to cater to foreigners.
- Avoid buffets if food covers or fly controls are not used or foods have not been kept steaming hot.
- Avoid undercooked meat, seafood, and fish; unpasteurized dairy products, such as cheese, yogurt, and milk; creamy desserts; cold sauces such as mayonnaise, salad dressing, and salsas; and leafy or uncooked vegetables and salads.
- Eat well-cooked, steaming-hot foods. Other foods that are safer to eat include breads, tortillas, crackers, biscuits, and other baked goods as well as canned foods and fruits, nuts, and vegetables with thick skins, peels or shells that can be removed.
- Avoid tap water or anything mixed with tap water and do not rinse toothbrushes in tap water.
- Do not use ice unless it is made from boiled, bottled, or purified water. Freezing does not kill the organisms that cause diarrhea.
- Use sealed bottled water or chemically treated, filtered, or boiled water for drinking and making ice and for brushing teeth.
- Drink canned, boxed, or commercially bottled carbonated water and drinks. Beer and wine are safe to drink; however, alcohol added to other beverages does not render the beverages safe.
- Purify water if one of these options is not available (see *Treating Water*). Decide which method to use for water purification and bring along the appropriate equipment or chemicals. Do not assume that water is safe because it is chlorinated. Chlorination does not destroy all the organisms that can cause illness.
- Continue to breastfeed infants who are nursing because it is the safest food source for these infants. If formula is used for feeding infants, prepare with boiled water and sterilized containers.

Blood-Borne and Sexually Transmitted Infections (STIs)

- Use condoms in all sexual encounters; unprotected casual sex, whether with local residents or with fellow travelers, always poses a high risk.
- Understand that inhibitions are diminished when traveling away from the social constraints of home; excessive use of alcohol and recreational drugs can influence behavior and encourage unintentional risk exposure.
- Avoid sexual relations with commercial sex workers.
- Consider short-term HIV preexposure prophylaxis with Truvada if very high-risk sexual behaviors are anticipated.
- Avoid skin-perforating procedures (acupuncture, piercing, or tattooing).
- Avoid invasive medical or dental procedures in unaccredited medical facilities (unless in a life-threatening situation); request proof of accreditation by Joint Commission International or other international bodies.
- Consider carrying disposable needles, syringes, and sutures for remote travel.

Swimming and Water Exposure

- Heed posted warnings and avoid beaches that are not patrolled.
- Recognize rip currents as a calm area with flat sandy water in front of the beach where the waves are not breaking and a line of white foam moves steadily seaward. Stay afloat, wave and yell for help, and swim parallel to the shore. Do not swim

directly against the current in an attempt to get immediately back to shore; doing so may lead to exhaustion and drowning.
- Do not swim alone or after dark and do not walk on any beach after dark.
- Avoid use of alcohol or mind-altering drugs while engaging in water sports. Avoid water where sewage contamination or algae are present. Avoid any exposure (rafting, swimming, or wading) in water known to be infected with schistosomiasis (bilharzia).
- Scuba dive only with personnel certified by the Professional Association of Diving Instructors (PADI) or the National Associated of Underwater Instructors (NAUI); use equipment only from PADI- or NAUI-certified dive operators.
- Follow established timetables for air travel after diving. The time from the end of the dive until the boarding of an aircraft is generally between 12 and 24 hours, depending on the type of dive.
- Decline water transportation in vessels without personal flotation devices or life jackets.
- Wear appropriate footwear when walking, wading, or swimming to avoid injury and exposure to parasites and poisonous plants and animals.
- Consider leptospirosis prophylaxis with 200 mg of doxycycline once per week (or 100 mg per day if in use for concomitant malaria prophylaxis) in developing countries where substantial risk of leptospirosis exists due to activities with exposure to water or wet environments (e.g., hikers, bikers, or adventurer travelers).
- Sit on a towel, blanket, or piece of clothing if a chair or hammock is not available because sand may be contaminated in areas frequented by animals. Thoroughly shake out all fabrics after use.
- Avoid eating amberjack, bonito, mackerel, mahi-mahi, or tuna due to risk of scombroid poisoning.

Rabies

- Never assume that an animal or bat is free of rabies.
- Avoid entering caves due to the possibility of exposure to bats and their droppings.
- Do not handle or feed pets, unknown animals (especially dogs and monkeys), or bats. Children should be closely supervised.
- Clean any bite, scratch, or lick on broken skin immediately with soapy water; seek postexposure prophylaxis for rabies (even if rabies vaccine was completed before exposure) or herpes B virus (transmitted by monkey bites).
- Minimize running or bicycling in high-risk rabies areas to avoid provoking domestic animals.

Skin/Wound Care

Extra vigilance, as outlined below, is recommended.

- Clean any bite, cut, or broken skin with safe water. Broken skin may become infected and lead to serious problems. Apply an antiseptic solution or spray.
- Seek medical help if increasing pain, redness, or discharge from a wound occurs, which suggests a spreading infection and may require antibiotic treatment.
- Always wear hats and apply sunscreen in the tropics. When both an insect repellent and sunscreen are used, apply the sunscreen first, let it dry completely, then apply the repellent. Very limited data suggest that DEET-containing repellents reduce a sunscreen's stated SPF UVB protection by as much as one-third, requiring more frequent sunscreen application. Sunscreens do not appear to reduce the efficacy of insect repellents (DEET or picaridin) but may increase the absorption of DEET (but not picaridin) through the skin, even when the sunscreen is applied first as recommended. Never use a combination sunscreen/insect repellent product (e.g., Avon Skin Soft Bug Guard, Bull Frog Mosquito Coast Sunscreen with Insect Repellent, or Sunsect).
- *Applicable only to African countries:* Iron all clothes that have been dried outdoors to prevent skin infestation by the larvae of the tumbu fly.

Tuberculosis

- Practice hand hygiene diligently.
- Avoid crowded public transportation or crowded public places that are poorly ventilated.
- Move away from anyone with a persistent or intense cough.
- Screen domestic workers for tuberculosis.
- Have a tuberculosis skin test or tuberculosis blood test before departure, once per year thereafter, and upon returning home (if planning a long stay to areas of the world where TB is highly or moderately endemic).

Pretravel Checklist

- Have predeparture medical and dental exams.
- Express any concerns about jet lag, altitude illness, or motion sickness to a travel health provider, who may suggest suitable medications.

- Pack adequate supplies of necessary medications and ensure that they are securely packaged in their original, labeled prescription containers and carried in multiple places. Travelers should have a letter from a physician stating the medical condition and the medications and/or medical supplies being carried.
    - If traveling with a controlled drug for personal use, review medication regulations on the International Narcotics Control Board website (http://www.incb.org/incb/en/travellers/index.html) as well as official government sites. Rules on amphetamine-based medications used for attention-deficit/hyperactive disorders should always be checked before travel.
- Prepare a compact medical kit that includes the following: simple first-aid supplies (such as bandages, gauze, hemostatic gauze, antiseptic, antibiotic ointment, butterfly bandages, skin glue, and splinter forceps), a thermometer, antipyretic agents, antifungal creams, cough and cold remedies, antacids, hydrocortisone cream, and blister pads.
- Pack a spare pair of eyeglasses or contact lenses and adequate cleansing solution, if applicable.
- Pack sunglasses, wide-brimmed hats, sunscreen (SPF 30+), and lip protection to avoid sun exposure problems during travel.
- Arrange adequate medical and evacuation insurance when traveling, even for short trips. Ensure all preexisting medical issues are declared to the insurer so that noncovered conditions are ascertained in advance. Have the insurer's contact details recorded and accessible at all times during travel.
- Carry a list of contact information for hometown medical providers, health insurance carriers, and a medical assistance company, keeping it accessible at all times.
- Carry a list of medical conditions, allergies, and medications (with dosages).
- Carry a copy of a recent electrocardiogram on a portable USB drive or ensure that it can be accessed on the internet (for those with cardiac disease).

Safety

Safety and Crime Avoidance

Extra vigilance, as outlined below, is recommended.

- Use caution in tourist sites and crowded areas and on or near public transportation; avoid marginal areas of cities.
- Be wary of any stranger who initiates conversation or physical contact in any way, no matter how accidental it may seem.
- Be familiar with common local scams and distraction techniques.
- Avoid using ATMs at night.
- Minimize visible signs of wealth in dress or jewelry.
- Wear handbags across the chest to prevent theft.
- Give up valuables if confronted. Money and passports can be replaced; life cannot.
- Use taxis from official ranks or dispatched via smart phone app or radio from a reputable company.
- Carry only a photocopy of the passport face page and legal entry stamp unless otherwise required by authorities; leave the actual passport in a hotel safe or other safe place.
- Advise at least 1 other person of one's whereabouts and expected schedule.
- Register a foreign trip and residence information with the Department of State at travelregistration.state.gov (U.S. citizens only), which facilitates communication and assistance in case of an emergency.

Safety in the Hotel

- Keep hotel doors locked at all times.
- Seek out and read fire safety instructions in the hotel room. Become familiar with escape routes upon arrival.
- Keep valuables in the room safe or the hotel safe.

Safety while Driving

- Do not drink and drive.
- Avoid overcrowded transportation.
- Keep automobile doors locked and windows closed at all times, if possible.
- Seek vehicles with seat belts, which may result in extra expense; decline vehicles without seat belts unless no choice is available.
- Decline transportation in vehicles with worn tires, worn brakes, or inoperative lights.
- Avoid driving at night or alone; seek local advice before driving outside urban areas after dark.
- Never drive a motorcycle or scooter abroad; passengers should wear a helmet.
- If planning a long stay, arrange for local mobile phone service (either a personal phone with a local plan or a locally purchased phone) to be in the vehicle when traveling.

Arboviral Infections

Traveler Summary

This article discusses Rift Valley fever, Ross River fever, Equine encephalitis, and Powassan encephalitis.

See also: *Chikungunya, Yellow Fever, Dengue, Japanese Encephalitis, Tick-Borne Encephalitis, West Nile Virus, Viral Hemorrhagic Fevers*, and *Zika*.

Key Points

- Arboviral infections, such as Rift Valley fever (RVF), equine encephalitis (EE), Ross River fever (RRF), and Powassan encephalitis (PE), are viral infections occurring worldwide, acquired through the bite of mosquitoes or ticks or contact with the blood or tissue of infected animals.
- Risk is difficult to predict but is generally low for travelers.
- Symptoms include fever, chills, eye redness and pain, muscle and joint pain, and arthritis.
- Consequences of infection include brain damage, vision loss, liver damage, and clotting abnormalities that may result in severe or fatal bleeding.
- Prevention includes observing personal protective measures against mosquito and tick bites.
- No vaccine or preventive drugs are available.

Introduction

Arboviral infections such as RVF, EE, RRF, and PE are caused by viruses worldwide and may be transmitted to humans through the bite of mosquitoes, ticks, or sand flies. RVF virus can also be transmitted via contact with infected animal or animal products. Most human infections are mild and transient, but some may cause serious disease. Many of these infections result in small, localized epidemics that occasionally involve travelers; others may be transported accidentally from one region to another and become established when transmission conditions are favorable. Immunity after human infection is usually lifelong.

Risk Areas

The viruses causing arboviral infections often live and multiply in animal hosts, which remain infective for life. Outbreaks of human infections are often local and seasonal and are affected by climate changes that result in flooding and warm temperatures.

Rift Valley Fever

RVF is a viral disease affecting cattle, goats, and sheep throughout Africa and Saudi Arabia.

Equine Encephalitides

EE are common in North America, with epidemics associated with heavy summer rainfall, flooding, and swampy areas. St. Louis encephalitis (SLE) occurs in the late summer or early fall in temperate states and throughout the year in the southern states of the US; the range of infection extends from Canada to Argentina. Western equine encephalitis and Venezuelan equine encephalitis (VEE) viruses are also found in the Americas. Human VEE cases have been reported in Central and South American countries, including Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Nicaragua, Panama, Peru, and Venezuela, as well as in Mexico and the US

Ross River Fever

RRF virus is present in most areas of Australia and Fiji. Barmah Forest virus, which causes a similar illness, is common in the Northern Territory and the states of Queensland and Western Australia.

Powassan Encephalitis

Powassan virus infections have been identified in Canada, Russia, and the US

Transmission

RVF virus is mainly transmitted to humans through contact with blood, bodily fluids, or tissues of infected animals (e.g., during slaughter, meat preparation, or while on hunting safaris) or through the bite of an infected mosquito. The virus live and multiply in sheep, goats, cattle, rodents, birds, horses, and donkeys, as well as in the mosquitoes carrying the disease.

Arboviruses causing Eastern equine encephalitis (EEE), SLE, and RRV are transmitted to humans via mosquito bites, whereas Powassan virus is transmitted through the bite of ticks.

Risk Factors

Risk of exposure to arboviral infections is variable; mosquitoes differ in their breeding sites and biting times. Risk is generally low for most travelers but higher for persons staying in accommodations or visiting places that are not protected against mosquitoes.

Rift Valley Fever

Risk is low for most travelers but increased for travelers sleeping outdoors in areas where outbreaks among animals are occurring. Risk is also high for hunters, veterinarians, slaughterhouse workers, and herdsmen.

Equine Encephalitides

Risk is high among residents but low among travelers (except during periods of outbreaks among animals) and is associated with outdoor activities, including work and recreation, especially in woodland and swampy areas.

Ross River Fever

Risk exists among travelers going to rural and peri-urban areas and at water reservoirs and is associated with exposure to mosquitoes.

Powassan Encephalitis

Risk is associated with exposure to ticks during outdoors activities, mainly from late spring to mid-fall.

Symptoms

Persons with arboviral infections may be symptom-free or may have either mild or severe symptoms. Symptoms most commonly appear a few days to 1 month following exposure and include fever, weakness, rash, headache, depression, eye redness and pain, muscle and joint pain, sensitivity to light, and arthritis. Jaundice (yellowing of the skin and eyes), confusion, convulsions, and shock may also occur.

Consequences of Infection

Arboviral infections can lead to liver damage, brain damage, loss of vision, or clotting abnormalities, which may result in severe or fatal bleeding.

Need for Medical Assistance

Most arboviral infections require no medical attention, but severe symptoms will require hospitalization and investigation. Treatment is supportive. No vaccine or preventive drugs are available.

Prevention

Nonvaccine

Personal protective measures are the main prevention strategy. Apply repellent during peak mosquito biting activity times and treat outer clothing, boots, tents, and sleeping bag liners with permethrin (or other pyrethroid) when traveling in a very high-risk area for arboviral infections. Avoid places where an epidemic is occurring or where recent flooding and high temperatures encourage mosquito breeding. Remove containers with stagnant water (which can serve as breeding sites for mosquitoes) from the proximity of human habitation whenever possible. In areas with RVF, avoid contact with animal blood, bodily fluids, and tissue, and avoid consuming unpasteurized milk or raw meat. Wear long, light-colored trousers tucked into boots when hiking to protect against tick bites. When camping, look for engorging ticks, paint them with kerosene, and remove them by the mouthparts with forceps, without squeezing the body.

See *Insect Precautions*.

Rabies

Traveler Summary

Key Points

- Rabies is an acute, fatal, viral infection of the brain occurring worldwide, transmitted via saliva through penetrating bites, licks, or scratches or contact with infectious nervous tissue from infected dogs, bats, and other mammals.
- Risk is low for travelers but becomes significant after a potential bite exposure.
- Symptoms are initially mild and include tingling at the site of the bite, fever, muscle aches, anxiety, depression, irritability, and sometimes respiratory or gastrointestinal symptoms.
- Consequences of infection are paralysis and coma, which is always fatal once the rabies virus reaches the brain from the site of the bite or wound.
- Prevention includes avoiding any contact with dogs and other biting mammals (including bats and wildlife) in countries with a high risk of rabies.
- Rabies vaccine for prevention prior to any exposure or potential bite is given in 3 doses: 1 each on days 0, 7, and 21-28. Following a potential rabies exposure, persons not previously vaccinated need 4 doses of vaccine (on days 0, 3, 7, and 14) plus rabies immune globulin on the first day (or within 7 days of the first dose of vaccine), whereas previously vaccinated persons need only vaccine and only 2 doses (on days 0 and 3).
- Vaccine side effects are most commonly injection-site reactions and fever, headache, dizziness, insomnia, and abdominal pain.
- Duration of vaccine protection following a completed series is limited to the time interval until any subsequent rabies exposure, at which time postexposure vaccination will be required. Travelers do not require routine boosters.

Introduction

Rabies is an acute, progressive, and fatal viral infection of the brain and spinal cord, transmitted via saliva through penetrating bites, licks, or scratches, or via contact with infectious nervous tissue from rabid animals. Almost all rabies deaths are due to dog or bat bites. Tens of millions of human exposures and tens of thousands of deaths may occur globally each year due to rabies.

Risk Areas

Rabies is found on all continents except Antarctica; most deaths due to rabies occur in Africa and Asia. Canine rabies (responsible for about 99% of human cases) occurs in parts of Africa, Asia, and to a much lesser extent in Central and South America. Bat rabies occurs worldwide, except in Japan, New Zealand, and several islands where bats are not present.

In the US, bats that feed on insects (notably silver-haired bats) are the most common cause of human rabies cases. In Central and South America, rabies transmitted by vampire bats causes significant death in cattle and occasional outbreaks in humans. Rabies virus can also be found in coyotes, foxes, raccoons, and skunks in the US; in foxes in the Americas, Europe, and southern Africa; in mongooses on the Caribbean islands and in southern Africa; in kudu and jackals mainly in southern Africa; and in ferret badgers in northeast Asia.

From 1990 through 2012, most cases of rabies infection in international travelers were acquired in Asia, notably in India and the Philippines; Central America and the Caribbean islands, notably Mexico; and in North Africa, notably Morocco and Algeria. Imported cases have also been reported in the US among travelers bitten by dogs during international travel. In the US, approximately 0 to 4 cases occur every year.

Transmission

Rabies is mainly transmitted to humans via saliva through penetrating bites of infected animals that may not exhibit features of the disease (especially carnivores and bats). Rabies virus is introduced through intact skin (e.g., by a bite or scratch) or licked onto preexisting nonintact skin or mucous tissue via saliva or contact with infected nervous tissue, where it then travels through the nerves to the brain. All mammals are susceptible, but dogs and other canines (foxes, wolves, jackals, and coyotes) are the most important vectors because they bite readily and may have daily contact with humans. Monkeys are a potential but uncertain source; nevertheless, monkey bites must be treated as a potential rabies risk. Bat rabies is transmitted by bat bites or scratches (which may not be noticed) or, more rarely, by inhalation of aerosolized bat saliva in caves where bats congregate. Bites from livestock, small and large rodents (beavers, gerbils, guinea pigs, hamsters, mice, rats, and woodchucks) and lagomorphs (hares, rabbits) do not usually transmit rabies. Rabies is not transmitted via exposure to blood, urine, or feces of infected animals and no human cases resulting from consumption of raw meat or raw milk from an infected animal have been reported. Human-to-human transmission has never been reported; rare routes of transmission include corneal grafting and tissue and organ transplantation.

Risk Factors

Risk is low for travelers and, although rare, rabies is a high-impact disease. Children are at higher risk because of their inquisitive nature, attraction to and inability to recognize behavioral signals from animals (especially dogs), small stature, and the possibility that they may not report an exposure. A bite, scratch, or lick from a dog or other mammal in a rabies-endemic country or a bite or scratch from a bat anywhere in the world presents a risk of rabies to an unvaccinated traveler.

Risk of developing rabies increases with severity (number and depth) of bites and proximity to the head. Vaccination is protective when given in a timely manner before and/or after exposure. Bites to the face carry an especially high risk and require more urgent initiation of treatment to neutralize the rabies virus before it reaches the brain.

Symptoms

Symptoms most commonly develop 20 to 60 days (but could occur 5 days to several years) after exposure (depending on the severity and site of the bite) and include tingling (at the site of the bite) followed by fever, headache, muscle aches, anxiety, depression, irritability, and sometimes respiratory or gastrointestinal symptoms.

Consequences of Infection

Patients with furious rabies, which is common after dog bites, are terrified of water and develop severe spasms of the breathing muscles, which may lead to suffocation, generalized convulsions, coma, and death (in approximately 5 days). Patients with paralytic rabies, which is common after bat bites, become lethargic, dribble saliva, and develop loss of muscle tone and paralysis (starting at the site of the bite or scratch), leading to coma and death in about 13 days.

Need for Medical Assistance

A traveler who has been bitten, scratched, or licked by a mammal in a rabies-endemic country or by a bat anywhere in the world should urgently seek medical advice on receiving a postexposure vaccination series. Any potential rabies exposure, even from months earlier, requires appropriate medical evaluation.

National, state, or local health authorities should be consulted by the traveler or medical provider for recent information on rabies risk according to the particular exposure.

Prevention

Nonvaccine

Preexposure

Travelers should:

- Avoid contact with all dogs (including puppies) in countries with canine rabies. Pets in some countries may not be vaccinated against rabies.
- Avoid contact with all animals, including wild mammals, free-roaming animals, and pets that are potential reservoirs (especially an animal that is behaving abnormally), in countries with rabies in wild mammals (e.g., mongooses, raccoons, or skunks).
- Avoid provoking domestic animals
- Avoid touching or feeding monkeys, especially those in temples and national parks, because they often show little fear of humans.
- Use protective measures to avoid bat exposure if planning to visit bat-infested caves.
- Be especially vigilant with children because they are at high risk for exposure and may not report bites, scratches, or other incidents that might occur.
- Avoid bringing animals home as pets; dogs and cats may be infected with rabies, but symptom onset may be delayed for several days or months.

Postexposure

Travelers should:

- Immediately cleanse all wounds thoroughly with copious amounts of soap and water (under a running tap if possible) for a minimum of 15 minutes and urgently seek care.
- Use a virucidal agent (such as povidone-iodine) if available to irrigate the wounds and destroy the virus.
- Have deep wounds explored, cleaned, and irrigated in a hospital (under an anesthetic if necessary) prior to wound closure or suturing.

Vaccine and Rabies Immune Globulin

Preexposure

Rabies vaccine can be given before travel to travelers going to any country with rabies (especially canine rabies) to simplify the postexposure vaccine schedule (to only 2 doses) and eliminate the need for rabies immune globulin (RIG), which is often very difficult to obtain abroad. Preexposure vaccination may also provide some protection if postexposure vaccination after a bite is delayed or if an unapparent exposure to rabies occurs.

Preexposure prophylaxis (PrEP) is recommended for:

- Long-stay travelers (1 month or longer) going to high-risk destinations
- Travelers with likelihood of repeat travel to risk areas
- Shorter-stay travelers in high-risk destinations if more than 24 hours from a reliable source of modern cell-culture rabies vaccine and RIG
- Travelers with extensive outdoor exposure (occupational or adventure) in high-risk destinations where immediate access to appropriate medical care may be limited, regardless of length of stay
- Risk-averse travelers going to high-risk destinations, especially those engaging in high-risk activities

Postexposure

Vaccine *without* RIG is given to persons who have previously completed a primary PrEP series at any time.

Vaccine *with* RIG is given to persons without a complete PrEP series (3 or more doses of rabies vaccine). Human rabies immune globulin (HRIG) provides rapid, passive, short-term immunity.

Postexposure prophylaxis (PEP), with or without RIG (depending on PrEP status; see below), is recommended for:

- Bite exposures that include any penetration of the skin by the teeth of a potentially rabid animal
- Nonbite exposures, including scratches or contamination of open wounds, abrasions, or mucous membranes with saliva or other potentially infectious material
- Bat exposures (or if it's not reasonably certain that exposure did not occur) from anywhere in the world (all bats should be considered potentially rabid)

Side Effects

The most common vaccine side effects are mild local reactions, which can include pain, redness, swelling, or itching at the injection site. Fever, headache, dizziness, abdominal pain, insomnia, and gastrointestinal symptoms may also occur. Neurological complications have been reported, albeit rarely.

Persons with underlying medical conditions or who have concerns about the vaccines should speak to their health care provider before vaccine administration.

Timing

Preexposure vaccination consists of 3 doses, 1 each on days 0, 7, and 28 (the third dose may be given as early as day 21 if time is limited).

Duration of vaccine protection is limited to the time interval until any subsequent rabies exposure, at which time postexposure vaccination will be required. Regular boosters are recommended only for persons at continuous or frequent risk (e.g., occupational exposures to rabies virus, animals, or bats), but not for travelers.

Postexposure vaccination, with or without RIG (depending on preexposure vaccination status; see below), is recommended for:

- *Persons who have received the complete preexposure vaccine series or a prior postexposure series:* Rabies vaccine only; 2 doses, 1 each on days 0 and 3.
- *Persons who have not received the complete preexposure vaccine series or a prior postexposure series:* Rabies vaccine plus RIG; 4 doses of rabies vaccine, 1 each on days 0, 3, 7, and 14, plus 1 dose of RIG (within 7 days of the first vaccine dose; preferably on the first day of vaccine administration). RIG is injected into and around the bite or exposure site to ensure as much contact with areas of saliva contamination as possible. Persons with weakened immune systems and travelers in resource-limited situations where RIG may be unavailable may receive a fifth dose of vaccine on day 28.

Preexposure and postexposure regimens can also be administered intradermally (ID), which differs from the more common route of intramuscular administration. Returned travelers may have been started on one of these ID regimens in the exposure country,

but public health agencies in the traveler's home country may not recognize these regimens and may recommend restarting a full standard postexposure series.

Travelers' Diarrhea

Traveler Summary

Key Points

- Travelers' diarrhea (TD), the most common health problem for travelers, is an intestinal infection affecting up to 70% of travelers going to developing countries.
- Risk is higher for young adults, persons with underlying illnesses, and those taking medicines that decrease gastric acidity.
- Symptoms can vary from mild to severe and can include uncomfortable, crampy diarrhea with nausea or vomiting; fever sometimes occurs. Significant dehydration is uncommon in adults.
- Consequences of infection may include persistent diarrhea, recurrent diarrhea, and other chronic gastrointestinal discomfort.
- Prevention includes observing food and beverage precautions and hand hygiene (frequent, thorough handwashing) and treating water.
- No vaccine is available in the US, and preventive antibiotics are not recommended. A vaccine with limited effectiveness is available in some countries but is not recommended.
- Self-treatment includes fluid rehydration and antimotility or antisecretory agents. Travelers should reserve the use of antibiotics for severe diarrhea.

Introduction

TD is the most common health problem for travelers, affecting up to 70% of travelers going to some developing countries. TD is caused primarily by bacteria (uncommonly by parasites or viruses) acquired through consumption of contaminated food or beverages. TD is characterized by the sudden onset of abnormally loose or liquid stools, such that the illness is either tolerable, interferes with many planned activities, or is incapacitating and prevents all planned activities. TD is usually a self-limiting disease that resolves in 3 to 4 days, but strategies are available to self-treat and shorten the duration of symptoms.

Risk Areas

The traveler’s destination is the most important determinant of risk. TD can be acquired whenever people from countries with a high level of hygiene travel to countries with a low level of hygiene. Developing countries in Africa, Asia, Latin America, and the Middle East are considered high risk. Most countries in southern Europe and a few Caribbean islands are deemed intermediate risk. Low-risk areas include Australia, Canada, northern Europe, Japan, New Zealand, the US, and several of the Caribbean islands.

Transmission

Poor sanitation, the presence of stool in the environment, and the absence of safe restaurant practices lead to risk of diarrhea from eating a variety of foods contaminated by fecal organisms, especially bacteria. Because travelers are usually careful to avoid drinking untreated water, many acquire TD from eating contaminated food. In long-stay travelers and expatriates who tend to eat adventurously for longer periods of time, parasites can account for 10% to 20% of diarrhea. Persons with a vomiting predominant illness, with or without diarrhea, may have a norovirus infection (especially if other close individuals have a similar illness) and are highly infectious for others sharing living quarters or bathroom facilities.

Risk Factors

Individuals at high risk for TD or adverse consequences include young adults (prone to risk-taking behavior and often on limited budgets); persons with compromised immunity, inflammatory bowel disease, or diabetes; and those taking medicines (e.g., omeprazole) that decrease gastric acidity.

Symptoms

TD caused by bacteria typically presents with abrupt onset of uncomfortable, crampy diarrhea and may be accompanied by nausea or vomiting and, less commonly, fever. TD caused by parasites is usually mild and begins gradually with loose stools occurring in distinct episodes during the day, slowly becoming more bothersome and associated with fatigue. Significant dehydration is uncommon in adults. Persons with protozoal infections often do not seek medical care for several weeks due to the generally mild nature of the symptoms.

Consequences of Infection

Persistent diarrhea, recurrent diarrhea, and other chronic gastrointestinal discomfort (e.g., bloating, gas, constipation) may occur as a result of TD. When diagnostic testing yields no other diagnoses, these chronic gastrointestinal symptoms may be attributed to "postinfectious irritable bowel syndrome."

Need for Medical Assistance

Persons who develop bloody stools or severe symptoms such as intense cramps, fever and chills, or severe thirst (with inability to keep liquids down) that do not rapidly improve with self-treatment should seek medical attention. Illnesses unresponsive to self-treatment will require specific investigation for possible protozoal causes.

Immediate medical care is imperative if an infant or child shows signs of severe dehydration, bloody diarrhea, fever higher than 38.5°C (101.5°F), or persistent vomiting.

Prevention

Food and Beverage Precautions

Guaranteeing the safety of food and beverages is difficult if not impossible when traveling, especially in developing countries. Nevertheless, travelers can continue to enjoy local foods, which is part of the pleasure of international travel; however, completely avoiding diarrhea in certain high-risk destinations may not be possible, even with the strictest adherence to preventive measures. Although some evidence exists to suggest that where food is eaten is more important than what food is eaten, observing food and beverage precautions helps minimize risk and decreases the number of organisms ingested and the severity of TD if contracted. These precautions also help reduce the risk of other infections, such as dysentery, hepatitis A and E, giardiasis, typhoid, and paratyphoid.

Developing countries don't always have the resources needed to ensure a pure water supply; consequently, tap water is not safe to drink because bacteria or parasites in food or water may go undetected. Even if the local population can drink the water, travelers should not assume that they can. Residents have built up some immunity to organisms in the water, but visitors have not.

No vaccine is available in the US, and preventive antibiotics are not recommended. A vaccine with limited effectiveness is available in some countries but is not recommended.

See the following articles: *Food and Beverage Precautions* and *Treating Water*.

Self-Diagnosis and Self-Treatment

The decision to self-treat depends on the severity of the functional disability caused by TD. Increased fluid intake is necessary to correct dehydration. Most cases will resolve with hydration and symptomatic treatment with antimotility or antisecretory agents (see Nonantibiotic Agents, under Drug Treatment). Adding antibiotics for moderate TD may shorten the duration or severity of illness. All severe TD cases should receive antibiotics.

Discuss self-treatment options with a health care provider to obtain appropriate medications for a personal medical kit for travel. A strategy for self-treatment of TD under different circumstances is shown in Table 1.

Table 1: Treatment Options by TD Severity

Severity of Diarrhea	Recommended Treatment
Mild: loose or liquid stools (without body symptoms) that are tolerable, not distressing, and do not interfere with planned activities.	• Antibiotics are not recommended. • May use bismuth subsalicylate (BSS) or loperamide (for maximum of 48 hours) if necessary for comfort during sightseeing or travel and if not contraindicated.
Moderate: loose or liquid stools with cramps or nausea that interfere with planned activities.	• Antibiotic use not encouraged due to potential for inducing resistant bacteria. May consider empiric azithromycin. Quinolone antibiotics (ciprofloxacin, levofloxacin, ofloxacin) may be used if azithromycin is not carried or not available en route. Avoid quinolones for TD acquired in India and Southeast Asia. • May use loperamide (for a maximum of 48 hours) as monotherapy or together with antibiotics if necessary for comfort during sightseeing or travel and if not contraindicated.

Severity of Diarrhea	Recommended Treatment
Severe: loose or liquid stools with cramps or nausea that are incapacitating or prevent planned activities. All dysentery (blood or pus in the stools) is considered severe.	• Use empiric azithromycin • Stay in room and use toilet as necessary. • May use loperamide (for a maximum of 48 hours) if necessary for comfort, unless dysentery is present (blood or pus in the stools). • Pay attention to rehydration. • Seek medical attention if symptoms do not rapidly improve or if dysentery is present.

Fluid and Dietary Management

TD in adults is not typically associated with clinically significant dehydration, but replacement of fluids that are lost remains a cornerstone of self-treatment. Mild dehydration can be corrected with any fluid, and a patient should drink any available appropriate fluid until oral rehydration solution (ORS) is obtained. ORS is designed to be rapidly absorbed from the intestine, thus it can be useful even in the presence of vomiting. If an ORS is thought to be indicated, many stores and pharmacies in developing countries carry ORS packets. Travelers going to remote areas should carry their own ORS packets. If not hungry, the ill traveler should drink fluids and not force food. If hungry, eating is encouraged, but avoid alcohol, coffee, strong tea, spicy food, greasy food, and dairy products.

For treating dehydration in children, the following recommendations for use of ORS should be followed:

- Severe dehydration, bloody diarrhea, fever higher than 38.5°C (101.5°F), or persistent vomiting: Immediate medical care is imperative for infants and children.
- Mild to moderate dehydration: Give 60 to 120 mL (2-4 oz) of ORS for every loose stool or vomiting episode to an infant weighing less than 10 kg (22 lb), and give 120 to 240 mL (4-8 oz) to children weighing more than 10 kg.
- Recovery period: Introduce a normal diet as quickly as the child will accept it. Use of specific, restrictive, or liquid diets or withholding food is not necessary.

Drug Treatment

Nonantibiotic Agents

Loperamide (an antimotility drug), which is available over-the-counter, appears to be safer than diphenoxylate (Lomotil), a prescription medicine. Take 4 mg initially; if mild diarrhea continues, take an additional 2 mg every 6 hours, not to exceed 8 mg/day for over-the-counter use and 16 mg/day by prescription; the latter accounts for physician screening for patient contraindications. For children aged ≥ 2 years, loperamide may dosed at 0.25 mg/kg/day when the modest benefit of a 1-day reduction in the duration of diarrhea is worth the slight risk of an adverse event. Taking higher than the recommended dose of loperamide can cause cardiac adverse events that may result in death in significant overdoses.

Antimotility agents sometimes induce prolonged constipation, even at low doses, and can lead to a bloated, uncomfortable feeling if taken for moderately severe infections without taking an antibiotic as well. Use of these agents should be discontinued if symptoms last more than 48 hours. Loperamide should not be taken by travelers with fever or with bloody stool. Antisecretory agents, such as bismuth subsalicylate (BSS; i.e., Pepto-Bismol and the US formulation of Kaopectate), can also improve some symptoms of TD.

Antibiotics

Travelers are often in areas where prompt, effective medical care is unavailable. Therefore, self-treatment of bacterial diarrhea with antibiotics prescribed and purchased prior to leaving for the trip may be more practical. The use of antibiotics can turn a 3- or 4-day illness into a 1-day illness. However, antibiotic use for TD increases the intestinal carriage of antibiotic-resistant bacteria in returning travelers, especially in South Asia where 80% of travelers treated with antibiotics acquired resistant bacteria. Antibiotic choice for the treatment of moderate (antibiotics discouraged) and severe TD in adults is shown in Table 2.

Table 2: Antibiotic Treatment for Severe and Moderate Bacterial TD in Adults[1]

Causative Intestinal Organism	Antibiotic Prescription[2]	Dose/Schedule	Primary Contraindications

Causative Intestinal Organism	Antibiotic Prescription[2]	Dose/Schedule	Primary Contraindications
Typical noninvasive bacterial causes of severe TD	Azithromycin 500 mg; 4 tablets	1,000 mg orally, single dose[3, 4]	Azithromycin allergy
		If symptomatic after 24 hr: continue with 500 mg orally, once per day for 2 more doses	
	Ciprofloxacin 500 mg; 6 tablets	750 mg single dose (1½ tablets)	Quinolone allergy; pregnancy; concomitant administration with tizanidine
		If symptomatic after 24 hr: continue with 500 mg orally, twice per day for 4 more doses	
	Levofloxacin 500 mg; 3 tablets	500 mg orally, single dose	Quinolone allergy; pregnancy
		If symptomatic after 24 hr: continue with 500 mg orally, once per day for 2 more doses	
	Ofloxacin 400 mg; 6 tablets	400 mg orally, single dose	Quinolone allergy; pregnancy
		If symptomatic after 24 hr: continue with 400 mg orally, twice per day for 4 more doses	
Noninvasive *E. coli* that cause TD (includes ETEC, EPEC, EAEC)	Rifaximin 200 mg; 9 tablets	200 mg orally, 3 times per day for 3 days	Rifamycin (or component) allergy; pregnancy; adults 65 years and older (studies on safety in this age group have not been done)

1. For use when fluid rehydration and antimotility or antisecretory agents are insufficient and diarrhea is severe or moderate (per Table 1). Antibiotic use increases intestinal carriage of antibiotic-resistant bacteria in returning travelers; travelers should be encouraged to restrict the use of antibiotics to self-treatment of diarrhea that is severe.
2. Side effects
   Azithromycin: Those with heart problems or heart rhythm problems should only use azithromycin under the supervision of a physician.
   Quinolones (ciprofloxacin, levofloxacin, ofloxacin): At the first sign of tendon pain, swelling, or inflammation, the traveler should stop taking the quinolone, avoid exercise and use of the affected area, and seek medical assistance. Quinolones may cause photosensitivity reactions in the tropical sun.
3. Seek medical attention as soon as possible for bloody stools. If effective medical care or medical consultation is unavailable, self-treatment is recommended. Preferred regimen for dysentery (bloody diarrhea) is a full 3-day course with a 1,000 mg initial dose.
4. The 1,000 mg single dose (two 500 mg tablets) can be split into 2 separate doses over the first day to reduce side effects.

Antiparasitic Drugs

In general, patients should not carry these medicines for self-treatment. See a health care provider because a proper diagnosis for parasitic infection is necessary, and these medicines are administered under supervision. Travelers going to extremely remote locations or on long trips may be given tinidazole to carry on a case-by-case basis.

West Nile Virus

Traveler Summary

Key Points

- West Nile virus is a viral infection acquired through the bite of infected mosquitoes in many areas of Africa, Europe, Australia, and the Americas.
- Risk exists for travelers going to affected countries who have extensive unprotected outdoor evening or nighttime exposure.
- Symptoms include fever, headache, fatigue, muscle aches, nausea, vomiting, and rash.
- Consequences of infection can include meningitis, brain inflammation, and paralysis.
- Prevention includes wearing long sleeves and long pants and observing personal protective measures against mosquito bites.
- No vaccine or preventive drugs are available.

Introduction

West Nile virus (WNV) is a viral infection transmitted via the bite of infected mosquitoes in Africa, Europe, Australia, and the Americas. WNV is a cause of severe neurological disease in humans, but most infected individuals are symptom free.

Risk Areas

WNV occurs in many areas of Africa, Europe, the Middle East, Asia, Australia, and North and Central America. In tropical climates, the disease occurs throughout the year. In the US and other temperate Northern Hemisphere climates, WNV occurs between June and November and peaks between July and September.

Transmission

WNV is mainly transmitted to humans (or animals) through the bite of infected mosquitoes, which are usually early-evening and night feeders. Mosquitoes become infected when they acquire the virus from infected birds. Individuals can also become infected through organ transplants, blood transfusions, breastfeeding, and during pregnancy (from mother to baby), albeit rarely.

Risk Factors

Risk is increased for travelers going to affected areas who may acquire the disease through mosquito bites, especially when outdoors at dawn or dusk.

Persons older than 50 years have the highest risk of severe disease; however, severe disease affecting the nervous system can occur at any age and is associated with underlying illnesses such as diabetes, cancer, hypertension, and kidney disease.

Symptoms

The severity of WNV infection varies. Most persons infected with the virus are symptom free, whereas about 20% develop a mild illness known as West Nile fever. Symptoms commonly appear 2 to 6 days (up to 21 days in persons with weakened immune systems) following exposure and include fever, headache, fatigue, muscle aches, nausea, and vomiting, rash (on the trunk), eye pain, and enlarged lymph nodes.

Consequences of Infection

WNV infection can result in a more severe disease called West Nile neuroinvasive disease in less than 1% of cases, with complications such as meningitis (characterized by high fever, headache, neck stiffness), brain inflammation (characterized by extreme tiredness/weakness, altered consciousness, confusion, and limb paralysis), or acute flaccid paralysis (characterized by limb weakness and paralysis). Death occurs in about 10% to 17% of cases with such severe disease.

Need for Medical Assistance

Travelers who develop symptoms of WNV infection during travel to or after returning from a risk area should seek immediate medical attention.

Prevention

Nonvaccine

Wear long sleeves and long pants and observe dawn and dusk personal protective measures against mosquito bites. See *Insect Precautions*.

Although there is no evidence that the virus is transmitted by handling infected birds, dead birds should not be touched.

COVID-19 Handout

COVID-19

Definitions of Common Terms

Contact exposure: Household member or a close contact of a symptomatic or symptom-free COVID-19 case(s) with face-to-face contact of less than 2 m (6 ft) 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. More than 15 minutes of cumulative contact (within a 24-hour period) while in a closed environment (e.g., classroom, meeting room, hospital waiting room,

etc.) or traveling with a COVID-19 case or any amount of direct contact with secretions from or direct physical contact with a COVID-19 case are also considered contact exposures.

Isolation-discontinuation criteria: At least 24 hours have passed since the last fever without the use of fever-reducing medications and improvement of symptoms and at least 10 days have passed since symptom onset.

Fully vaccinated persons: 2 weeks or more following receipt of the second dose in a 2-dose series or 2 weeks or more following receipt of 1 dose of a single-dose of a US FDA-authorized or WHO Emergency Use Listing vaccine.

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.

Quarantine: The mandatory or self-separation of asymptomatic person(s) reasonably believed to have been exposed to a communicable disease from others not yet exposed.

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); daily new case numbers have been gradually decreasing (with occasional fluctuation) globally, resulting in reimplementation of travel restrictions and internal disruptions in many countries. Asia and Latin America are currently most affected, followed by Europe, North America, the Middle East, and Africa. COVID-19 results in respiratory illness (including pneumonia) and is acquired via inhalation of respiratory droplets from an infected person or direct contact with contaminated surfaces.
- Risk should be assumed present in all countries of the world and is higher with contact exposure and inpatient or outpatient visits to health care facilities in an affected area. Risk of poor outcome increases with age and is higher in persons (regardless of age) with underlying medical conditions (e.g., cancer, obesity, pregnancy, diabetes, sickle cell disease, solid organ transplantation, or cardiac or kidney disease). The situation is evolving daily; a travel medicine specialist should be consulted immediately before a trip.
- Symptoms commonly include fever and dry cough, progressing to shortness of breath; chills, muscle pain, headache, sore throat, congestion, and runny nose may occur. Loss of smell and/or taste is an early and highly specific symptom. 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.
- Prevention includes observing respiratory hygiene, hand hygiene, and social distancing, and consistent and correct wearing of an appropriate mask (ideally either a tightly fitting surgical mask or 2 separate masks). Mask wear is mandated when awaiting, boarding, traveling on, or disembarking all public conveyances (e.g., airplanes, ships, ferries, trains, subways, buses, taxis, ride-shares) traveling into, within, or out of the US. This order (which expires on September 13, 2021) also applies to any indoor or outdoor transportation hub (airport, bus or ferry terminals, train or subway stations, seaports, ports of entry) in the US.
- Several vaccines are authorized for use in Canada, the EU, the UK, the US, and several other countries.
    - In the EU, Canada, and the US, all persons 12 years and older are eligible for vaccination and vaccine is readily available.
    - No vaccine is recommended preferentially over another for most age groups; all 3 US authorized COVID-19 vaccines (Pfizer; Moderna; and Janssen/Johnson & Johnson [J&J]) provide strong protection against severe COVID-19 (e.g., hospitalization and death) and significantly reduce the ability to infect others (substantial evidence). Full vaccination is highly effective against US CDC-designated variants of concern but less so with the Janssen/J&J vaccine. 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. Efficacy data, including for subgroups, are not strictly comparable between vaccines because studies were carried out at different phases of the pandemic, with different population profiles, and in different countries.
    - The 2 mRNA vaccines (Pfizer and Moderna) are essentially equivalent for short-term efficacy against symptomatic disease, almost uniformly greater than 90% for all age groups (including the elderly) and for safety parameters that have been analyzed to date. Prevention of severe-to-critical disease in healthy persons younger than 60 years by the

Janssen/J&J vaccine (92%) appears equivalent to mRNA vaccines but the vaccine is less effective in this age group in preventing moderate-to-severe disease (66%). A single dose of the Janssen/J&J vaccine does not appear nearly as effective as mRNA vaccines in preventing severe/critical disease in those older than 60 years (70% efficacy) or in preventing moderate-to-severe disease in those older than 60 years with underlying medical conditions (42%).
    - Analysis of some vaccines indicates some protection (up to 72% with the Janssen/J&J vaccine and 90% with the Pfizer vaccine) against symptom-free infection; analysis of effects on transmission to others is ongoing.
    - Studies are underway on the interchangeability of vaccines; receive the same vaccine for all doses if possible.
    - Duration of protection lasts for at least 7 months and almost certainly for more than a year.
    - 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 low.
    - Occurrences of immediate allergic reaction or anaphylaxis with mRNA vaccines remain rare; treatment with epinephrine has been immediately effective in all occurrences. Contraindications to vaccination are immediate allergic reaction or anaphylaxis after a previous dose of the vaccine or separately to any of its components (including polyethylene glycol [PEG] for mRNA vaccines and polysorbate for the Janssen/J&J vaccine); polysorbate is found in some drugs and food preparations.
    - Occurrences of a unique blood clotting syndrome with the AstraZeneca and Janssen/J&J vaccines remain very rare and have occurred almost exclusively in women younger than 55 years. The Janssen/J&J vaccine is authorized for use in all persons 18 years and older in the US.
    - Persons with a contraindication to an mRNA COVID-19 vaccine have a precaution to the Janssen/J&J vaccine and vice versa.
    - Efficacy for the mRNA vaccines in pregnant women is similar to that in nonpregnant women and is only very slightly diminished in persons with major underlying medical conditions (more so with the Janssen/J&J vaccine). Efficacy for both types of vaccine is not known for persons with weakened immune systems. No safety issues have been identified in the aforementioned groups, and they should be vaccinated.
    - Those with acute COVID-19 should be vaccinated but should defer vaccination (first or second dose) until isolation-discontinuation criteria have been met.
    - All vaccinees need to receive both doses (if applicable). With the mRNA vaccines, most persons are protected 2 weeks after the first dose but this single-dose immunity may well be very transient without a 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.
    - The Pfizer vaccine is authorized for use in children aged 12-15 years; authorization for the Moderna vaccine in this age group is expected in June 2021. For children aged 2-11 years, authorization for an mRNA vaccine is expected in September 2021 and for children as young as 6 months, authorization is expected in the fourth quarter of 2021.
- Fully vaccinated persons do not need to mask or socially distance anywhere at any time, except in health care, long-term care, and correctional facilities; in homeless shelters; or as mandated for public transportation. Fully vaccinated persons with weakened immune systems should consult their provider before relinquishing a face mask. See Masks for specific masking guidance for vaccinated and unvaccinated persons.
- Remdesivir and dexamethasone are the only standard treatment drugs. Older or high-risk outpatients with mild disease should seek out a center that can administer intravenous monoclonal antibody therapy. Do not take any oral treatment medications unless prescribed by a provider.
- Many countries, including the US, Canada, and Australia, are advising deferral of all travel, even domestically.
- Many airlines and/or destination countries have implemented extra prevention measures to include screening for fever before a flight, wearing a mask (with strict masking requirements on long-haul flights), or requiring a negative COVID-19 viral diagnostic test result prior to departure (travelers should ensure results will be available in time to present at the airport). All travelers older than 2 years (regardless of vaccination status) arriving in the US from any country (that is not a US territory or possession) must have a negative result from a test taken within 3 calendar days of departure; certain self-administered COVID-19 tests can now satisfy the entry requirement (see Testing).

Introduction

COVID-19, an acute disease that causes respiratory illness (mainly pneumonia), was first detected in China in December 2019 and has since spread to all countries worldwide. The causative coronavirus (SARS-CoV-2) is closely related to the severe acute respiratory syndrome coronavirus (SARS-CoV) that caused SARS in 2002-03. Several genetic variants (most of which do not increase transmissibility or cause more severe disease) are circulating in more than 130 countries (including the US). Community transmission is presumed to be occurring in all countries, and more than 173 million cases (including more than 3.7 million deaths) were reported as of early June 2021. The global outbreak has decreased (with occasional fluctuations) following a record

peak in late April 2021. Many countries (especially in Asia, Latin America, and Europe) with previously controlled outbreaks are currently reporting increasing case numbers but also decreasing hospitalization rates; the outbreak is likely to cause significant risk and disruption for many more months. 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. WHO has declared the outbreak to be a global pandemic, the worst possible scenario.

Risk Areas

Significant risk exists worldwide, at present especially in Asia (mainly India) and Latin America (mainly Brazil), followed by Europe, North America, the Middle East, and Africa. The outbreak in China appears controlled and almost over; future waves of transmission are possible.

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. 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
- Contact exposure
- Inpatient or outpatient visits to health care facilities in an affected area

Most people with COVID-19 develop some immunity (for at least 6 months), but the robustness and full duration of the immunity remains unknown. More than 80 cases of COVID-19 reinfection have been reported.

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

Risk of poor outcome is higher in:

- Older persons (risk increases steadily with age)
- Persons with underlying medical conditions
  - Strong evidence: cancer, cerebrovascular disease, chronic kidney disease, chronic obstructive pulmonary disease, diabetes type 1 and 2, serious heart conditions, obesity (BMI greater than 30), pregnancy or recent pregnancy, and smoking (a history of or currently)
  - Moderate evidence: children (those with serious genetic, neurologic, or metabolic disorders or genital heart disease), Down syndrome, HIV (persons with low CD4 count or not on effective HIV treatment), neurological conditions, overweight (BMI 25 to less than 30), other chronic lung diseases, sickle cell disease, solid organ or blood stem cell transplantation, substance use disorders, and use of steroids or other medications that suppress the immune system.
  - Limited evidence: cystic fibrosis and thalassemia
  - Mixed evidence: asthma (moderate to severe), hypertension, liver disease (especially cirrhosis), and other immune system deficiencies

Only a few in-flight transmission clusters have been reported among persons on board commercial aircraft, despite the large number of flights with many passengers on board. The absence of a large number of in-flight transmissions is encouraging but is

not definitive evidence that fliers are safe.

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

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

Symptoms

Symptoms commonly develop within 2 to 7 days (typically 5 days, but up to 14 days) after infection and include fever, cough, and shortness of breath. Difficulty breathing, chills, muscle pain, headache, sore throat, congestion, runny nose, nausea, vomiting, and diarrhea may occur. Loss of smell and/or taste (even without fever or cough) is an early and highly specific symptom. In some patients, symptoms are mild the first week, and shortness of breath or pneumonia does not begin until the second week. Approximately 30% to 40% of all infections are truly symptom free and more than 80% of symptomatic cases are mild to moderate.

Consequences of Infection

Pneumonia occurs in COVID-19 cases that progress and worsen. Severe illness (more likely in persons with underlying medical conditions, older adults, or males) occurs in about 20% of cases and may result in lung or heart damage. Difficulty breathing, prolonged fatigue, altered mental status, and memory loss have been reported in persons with mild-to-severe illness; more than one-third do not return to their usual state of health for many weeks to months after infection. The overall death rate after infection is approximately 0.65% and increases with age. For symptomatic cases in those younger than 50 years, the death rate is negligible but for those older than 65 years, the death rate is 5% to 10% and for those older than 75 years, the death rate is consistently greater than 10%; persons of any age with underlying medical conditions are at increased risk of poor outcome or death. A current age stratification contrasts reported cases versus deaths in the US. According to the US CDC, 66% of cases in the US have occurred in people younger than 50 years, and just 14% of cases have occurred in people older than 65 years. In contrast, approximately 5% of deaths occurred in people younger than 50 years, and approximately 80% of deaths occurred in people older than 65 years. Over the past week, approximately 55% of all US cases have occurred in persons younger than 40 years.

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.

For US-bound air travelers (all persons aged > 2 years regardless of vaccination status), certain self-administered COVID-19 tests can now satisfy the entry requirement for a negative COVID-19 test result from a test taken within 3 days prior to departure; see Travel Restrictions and Advisories. The collection and testing process must have real-time supervision via a remote audio and video telehealth visit with a service affiliated with the test manufacturer; the telehealth provider must confirm the test result and issue a report that meets US CDC's requirements (e.g., type of test, issuing entity, specimen collection date, traveler identifying information, and test result). Of the FDA EUA home tests, the only available kit in the US that currently appears to meet the above criteria is the nonprescription Abbott BinaxNOW COVID-19 Ag At-Home Test Kit (USD150 for 6 tests; currently only available at https://www.emed.com/products/covid-at-home-testkit-six-pack); this test provides results within 15 minutes via the NAVICA app (iPhone and Android compatible). Shoreland recommends that all travelers carry the Abbott BinaxNOW COVID-19 Ag At-Home Test Kit either for meeting the entry requirement or for the convenience and confidence of observed testing in the event of a known contact or onset of COVID-19–compatible symptoms during travel.

In the US, 2 additional rapid nasal swab antigen tests (Ellume COVID-19 Home Test and Abbott BinaxNOW COVID-19 Antigen Self Test) are now available without a prescription, for completely at-home, unobserved self-collection testing for SARS-CoV-2 but do not meet the aforementioned entry requirement criteria. The Ellume test is available for USD39 (single-test package) at CVS (select stores and online) and will be soon be available nationwide. The Abbott test is available for USD24 (2-test package) at CVS, Walgreens, and Walmart (online and in stores for all 3 retailers) and will available nationwide at other major food, drug, and retail outlets. The Ellume test uses a Bluetooth-connected analyzer in conjunction with a smartphone app to provide digital results in 15 minutes or less.

More than 190 countries now require travelers to be in possession of a negative viral test result (with 38 countries also accepting antigen tests) from a test taken within a prescribed number of days prior to arriving in the respective country (usually 3 days), and more than 40 additional countries require 1 or more negative viral results (with 39 countries also accepting antigen tests) to be exempt from quarantine or other restrictions. More than 170 countries require testing upon arrival in the respective country, some regardless of whether the traveler already had a negative test prior to arrival.

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. See Table: Vendors Offering At-Home Sample Collection Kits. Digital health passport implementation for travel by individual airlines and commercial vendors (but not yet by national authorities) is gradually beginning and smartphone apps are being developed. Authorized laboratories and test centers will also be able to securely send medical information directly to passengers. Some countries are mandating tracking apps to be downloaded onto the mobile telephones of all arrivals; those with privacy concerns should ascertain this in advance.

The following testing strategies (PCR or antigen) are recommended for symptom-free US travelers:

- International travel or any cruise (domestic or international): diagnostic testing 1 to 3 days before departing the US (unvaccinated travelers only); 3 to 5 days after arrival at the destination (unvaccinated travelers); 1 to 3 days before returning to the US (*required* for all air travel from non-US territories or possessions* regardless of vaccination status); and again 3 to 5 days after travel/cruise (regardless of vaccination status); travelers who tested positive in the past 3 months and met isolation-discontinuation criteria are exempt from this recommendation.
- Domestic travel: diagnostic testing 1 to 3 days before travel and again 3 to 5 days after arrival at the destination. Fully vaccinated travelers and those who tested positive in the past 3 months and met isolation-discontinuation criteria are exempt from this recommendation unless required by local, state, or territorial health authorities.

* US territories and possessions: American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and US Virgin Islands

See Persons with Community or Direct Exposure to COVID-19 Cases for posttravel preventive measures 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 should seek out a center that can administer intravenous monoclonal antibody therapy. 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, and mask wear 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 wearing substantially reduces transmission by preventing infected persons from exposing others by blocking exhalation of virus-containing particles into the air (termed source control) and by protecting uninfected wearers. Either wear a tightly fitted surgical or medical procedure mask or wear 2 masks (e.g., wear a 3-ply nonmedical cloth mask over a 3-ply surgical mask) to further reduce the risk of exposure. Do not combine 2 disposable masks or combine an N95 with any other mask.

In general, fully vaccinated persons no longer need to mask or socially distance anywhere at any time, except in certain circumstances. Overall, precautions assume that vaccinees are fully protected from significant consequences of infection.

Persons with weakened immune systems who have been fully vaccinated should consult their physicians before relinquishing a face mask. Unvaccinated persons face a complex set of guidelines according to circumstances.

Fully vaccinated persons:

- Can travel domestically and internationally with low risk to themselves.
- Should continue to wear a well-fitted mask in health care, long-term care, and correctional facilities; homeless shelters; or as mandated for public transportation.
- Should not visit or attend a gathering if they are experiencing COVID-19 symptoms or have had a positive COVID-19 test in the 10 days prior, regardless of the vaccination status of others at the gathering.
- Can refrain from routine screening or testing (some exceptions) or quarantine following a known exposure if symptom free.

Unvaccinated persons:

- Can gather outdoors or participate in outdoor activities
  - Without a mask if participating in activities with household members or attending a small outdoor gathering with only fully vaccinated persons.
  - With a mask if attending a small outdoor gathering with fully vaccinated persons and other unvaccinated persons (from multiple households)–especially in areas of substantial-to-high transmission–or dining at an outdoor restaurant with unvaccinated persons from multiple households.
- Can gather indoors
  - Without a mask if
    - Attending a small indoor gathering with only fully vaccinated persons.
    - Attending a small indoor gathering with unvaccinated persons of any age (at low risk for severe COVID-19) from a single household in the home of either the vaccinated or unvaccinated household or at another private location.
  - With a mask if
    - Attending a small indoor gathering with unvaccinated persons from multiple households. Ideally, the visit should move outdoors.
    - Attending a crowded event (e.g., live performance, parade, or sports event).
    - Visiting a hair salon or barber, visiting an uncrowded indoor shopping center or museum, attending a full-capacity worship service, going to an indoor movie theater, singing in an indoor choir, eating at an indoor restaurant or bar, or participating in an indoor, high-intensity exercise class.

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, which should be changed or washed (if washable) regularly, ideally daily. Not all masks perform equally and those made from high-thread count cotton and tightly woven hybrid materials (e.g., cotton combined with a synthetic) as well as those with multiple layers (ideally 3 layers of different material: inner layer of absorbent material [e.g., cotton]; middle layer of nonwoven material [e.g., polypropylene, which may capture charged particles]; and an outer layer of nonabsorbent material [e.g., polyester]) perform best; the latter construction is beyond the capabilities of most individual households. Persons with a beard may have difficulty fitting a mask properly and should do 1 or more of the following to ensure a proper fit: shave or trim their beard, use a mask fitter or brace, wear 2 masks with the second mask pushing the edges of the inner mask snuggly against the face and beard. Bandanas and neck gaiters should be avoided. Standards for cloth masks are not yet available to help consumers select marketed products.

A US federal order (which expires September 13, 2021) mandates the wearing of face masks by everyone (except children younger than 2 years and persons with a disability that precludes safe mask wear) when awaiting, boarding, traveling on, or disembarking all public conveyances (e.g., airplanes, ships, ferries, trains, subways, buses, taxis, ride-shares) traveling into, within, or out of the US. This order also applies to any indoor or outdoor transportation hub (airport, bus or ferry terminals, train or subway stations, seaports, ports of entry) in the US. Masks must be made with 2 or more layers of a tightly woven breathable fabric and fit as described above; gaiters are acceptable if they have 2 layers of fabric covering the nose and mouth. Unacceptable face coverings include masks with an exhalation valve, slits, or punctures; masks made from loosely woven fabric or materials that are hard to breathe through (e.g., vinyl, plastic, leather); face shields (when used alone); scarves, ski masks, balaclavas, or bandanas; and shirt or sweater collars (e.g., turtleneck collars pulled up over the mouth and nose).

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

All US authorized COVID-19 vaccines (mRNA: Pfizer and Moderna; viral vectored: Janssen/Johnson&Johnson [J&J]) provide strong protection against severe COVID-19 (e.g., hospitalization and death) and significantly reduce the ability to infect others (substantial evidence); no vaccine is recommended preferentially over another. However, when vaccine availability is not an issue and a choice is possible, Shoreland recommends mRNA vaccines as a first choice, especially for travelers. An exception to this recommendation might be for travelers with an imminent departure who could benefit from the single-dose Janssen/J&J vaccine. Full vaccination is highly effective against all known variants but less so with the Janssen/J&J vaccine. The Pfizer and Moderna vaccines are authorized for use in Canada, the EU, the UK, the US, and several other countries and the Janssen/J&J vaccine is authorized for use in Canada, the EU, the US and several other countries. The mRNA vaccines are essentially equivalent in short-term efficacy against symptomatic disease, almost uniformly greater than 90% for all age groups (including the elderly) and the Janssen/J&J vaccine efficacy is greater than 66% for all age groups (including the elderly); however, direct comparison of efficacy data, including for subgroups, is not possible because studies were carried out at different phases of the pandemic, with different population profiles, and in different countries. Prevention of severe-to-critical disease in healthy persons younger than 60 years by the Janssen/J&J vaccine (92%) appears equivalent to mRNA vaccines but the vaccine is less effective in this age group in preventing moderate-to-severe disease (66%). A single dose of the Janssen/J&J vaccine does not appear nearly as effective as mRNA vaccines in preventing severe/critical disease in those older than 60 years (68% efficacy) or in preventing moderate-to-severe disease in those older than 60 years with underlying medical conditions (42%). Analysis of some vaccines indicates some protection (up to 72% with the Janssen/J&J vaccine and 90% with the Pfizer vaccine) against symptom-free infection; analysis of effects on transmission to others is ongoing. Duration of protection lasts for at least 7 months and almost certainly for more than a year. No data exist on the interchangeability of vaccines; receive the same vaccine for all doses if possible.

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. Occurrences of immediate allergic reaction or anaphylaxis with either mRNA COVID-19 vaccine remain rare and reactions have uniformly responded immediately to epinephrine. 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. Itching at the site of redness and swollen lymph nodes in the armpit may also occur. The reaction resolves over 4 to 5 days. A very rare syndrome of blood clots in the brain and abdomen together with low platelet counts has been reported in AstraZeneca vaccine recipients (1 case per 100,000 vaccine doses) in Europe and Canada and in Janssen/J&J vaccine recipients (7 cases per 1 million vaccine doses in women younger than 50 years) in the US; specific risk factors are unknown. The syndrome occurs almost exclusively within 2 weeks after vaccination, with a death rate as high as 40%. Health authorities continue to state that the risk-benefit profile of these vaccines weighs in favor of their use; in Europe, national authorities may provide additional guidance or limitations, and in the US, the Janssen/J&J vaccine remains authorized for all persons 18 years and older. No cases have been reported to date with mRNA vaccines.

Contraindications to vaccination are anaphylaxis or immediate allergic reaction after a previous dose of a COVID-19 vaccine or separately to any of its components, including PEG (for mRNA COVID-19 vaccines only) or polysorbate (for Janssen/J&J vaccine only); polysorbate is found in some drugs and food preparations. With an allergist consultation, the vaccine may be considered in a controlled setting. *Precautions* to vaccination are an immediate allergic reaction to any other vaccine (including a different type of COVID-19 vaccine) or injectable therapy not related to a component of the vaccine or a reaction to a vaccine or injectable therapy that contains multiple components, one of which is a vaccine component (e.g., PEG, polysorbate, or another vaccine component), even if the component that elicited the immediate allergic reaction is unknown. Persons with a contraindication to an mRNA COVID-19 vaccine have a precaution to the Janssen/J&J vaccine and vice versa. A history of food (including egg and gelatin), pet, insect, venom, environmental, latex, oral medications (including the oral equivalents of injectable medications); any other history of anaphylaxis not related to vaccine or injectables; or a family history of anaphylaxis are not considered contraindications or precautions. "COVID arm" and previous receipt of dermal fillers are not contraindications to vaccination.

Efficacy in persons with major underlying medical conditions is slightly diminished with mRNA COVID-19 vaccines and more so with the Janssen/J&J vaccine, but efficacy is not known in persons with weakened immune systems; fully vaccinated persons with highly weakened immune systems should continue to consider themselves as unvaccinated and vulnerable in regard to allowed activities and masking guidance. 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 dose) until isolation-discontinuation criteria has been met. All vaccinees need to receive both doses (if applicable). With the mRNA COVID-19, most persons are protected 2 weeks after the first dose but this single-dose immunity may well be very transient without a second dose; this could not be assessed one way or the other because all trial subjects eventually received a second dose. When the same mRNA vaccine product is temporarily unavailable for the second dose, delaying the second dose for up to 6 weeks is preferred to allow for receipt of the same vaccine versus receiving a mixed series using a different vaccine.

In the US, all persons 12 years and older are eligible for vaccination and all vaccines are readily available. The Pfizer vaccine is authorized for use in children aged 12-15 years; authorization for the Moderna vaccine in this age group is expected in June 2021. For children aged 2-11 years, authorization for an mRNA vaccine is expected in September 2021 and for children as young as 6 months, authorization is expected in the fourth quarter of 2021. Vaccine approval or release under an EUA will not lead to an immediate or rapid end of the pandemic or of other social distancing, masking, or mitigation measures.

US CDC guidelines for allowable activities and the need to mask for fully vaccinated persons are now available. 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. Fully vaccinated persons:

- Can travel domestically and internationally with low risk to themselves.
- Should continue to wear a well-fitted mask in health care, long-term care, and correctional facilities; homeless shelters; or as mandated for public transportation.
- Should not visit or attend a gathering if they are experiencing COVID-19 symptoms or have had a positive COVID-19 test in the 10 days prior, regardless of the vaccination status of others at the gathering.
- Can refrain from routine screening or testing (some exceptions) or quarantine following a known exposure if asymptomatic.

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).

To make a bleach solution, add 20 mL (4 teaspoons) of bleach to 1 L (1 quart) of water; for a larger supply, add 75 mL (5 tablespoons) of bleach to 4 L (1 gallon) of water. For surfaces sensitive to bleach, at least 70% ethanol should be used. Alcohol-based hand disinfectants and common hospital personal disinfectants are all effective against SARS-CoV-2 but provide no ongoing protection between uses.

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

All travel (domestic or international) should be postponed until fully vaccinated , especially for those at higher risk of a poor outcome. All cruise travel worldwide should be avoided. Unvaccinated persons who decide to travel should for 14 days before travel: observe social distancing and respiratory and hand hygiene; wear a nonmedical mask; and avoid attendance at high COVID-19–risk activities such as large social or mass gatherings (e.g., weddings, funerals, parties, concerts, sporting events, parades), crowds (e.g., restaurants, bars, airports, bus and train stations, movie theaters), and travel on a cruise ship or river boat. 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 vaccines 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:

- Only a limited number of cruises to be available prior to July 1 and will mostly be limited to vaccinated persons.
- US-based cruises beginning in July to be mostly limited to vaccinated persons.
- Cruise duration to be restricted to 7 days or fewer.
- Shoreside screening and testing prior to embarkation.
- On-board testing prior to disembarkation.
- Modified meal and entertainment activities to facilitate social distancing.
- Immediate on-board quarantine and expeditious evacuation if the ship experiences any COVID-19 cases.

Unvaccinated travelers or business travelers should only use prearranged, solo (e.g., alone or only with existing traveling companions) transportation and consider arranging for a larger vehicle to facilitate social distancing from the driver; use touchless payment when available, and handle luggage personally. Mask use is indicated in high-transmission destinations. In lodging establishments, avoid contact with any valets at the entrance, book rooms on low floors and use the stairs, clean all high-touch surfaces in the room, minimize housekeeping visits during the stay (leave the room before arrival of housekeeping personnel), and avoid the gym. For food service, preferentially use contactless room service if available and completely avoid self-service buffets. Ensure lodging establishments comply with distancing for guests and staff (especially at check-in) and other guidance issued by public health authorities.

In the Workplace

To help prevent workplace exposure to acute respiratory illnesses, including COVID-19 and influenza, employers should actively encourage (through generous leave policies) employees with fever (38°C [100.4°F] or higher for the general population and 37.8°C [100°F] or higher for health care workers) using an oral thermometer, signs of fever, or symptoms of respiratory illness to remain at home, to observe hand hygiene and social distancing if possible, and to avoid sharing household items. Employees who become ill at work should be immediately isolated from other employees, sent home, and tested for influenza and COVID-19. Employee education on the aforementioned measures should be aggressive. Worksite hygiene measures and worksite disinfection should be active and continuous. Employees that are at higher risk of poor outcome from COVID-19 (e.g., those that 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.

Employees with symptoms, including health care workers, with confirmed or suspected COVID-19 should not return to work until they are free of fever for at least 24 hours without the use of fever-reducing medications *and* other symptoms have improved *and* at least 10 days have passed since symptom onset (up to 20 days for persons with severe to critical illness or a severely weakened immune system). Symptomatic persons with suspected or confirmed *influenza* may return to work once they are free of fever for 24 hours or more without the use of fever-reducing medications; those who never developed a fever may return to work 5 days after symptom onset. Symptom-free persons (never had symptoms) with a positive test may return to work if more than 10 days have passed from the date of the positive test and they have remained symptom free.

In workplaces with only fully vaccinated employees onsite, the following points may be helpful:

- The community environment and local transmission situation is changing dramatically with increased vaccination and decreased illnesses. By July 2021, the expectation in the US is that most or all counties will be nearing or below 1 case per 100,000 population per day, a level at which most available plans would forsake general masking.
- Fully vaccinated persons have negligible chances of becoming infected with or transmitting SARS-CoV-2 and vaccination of both working parents reduces the risk of household transmission to unvaccinated children by 50%.
- Distancing works and that is the expectation of return-to-work plans for most employers. In general, a well-spaced office full of vaccinated people is lower risk than a trip to the store where there are strangers who may be unvaccinated.
- In a one-on-one situation, vaccinated employees should respect a request by another highly concerned vaccinated employee to mutually mask during daily interactions. In distanced group meeting settings, a concerned person may wear an N95 mask (now generally available), which protects the wearer as well as if all persons were wearing regular medical masks.

- In school/camp settings, no matter the efforts made in those settings, more protocol glitches will occur than what is anticipated for fully vaccinated offices.
- For young preschool children who might have to return to or start daycare, the risk of those settings is similar to community risk, which is premised in most areas to be very low and approaching the other all-hazards risk of everyday life before the pandemic.

Unvaccinated persons in critical infrastructure sectors may continue to work (at the discretion of state and local health authorities) following potential exposure to SARS-CoV-2 as long as they remain symptom free and certain additional precautions recommended by US CDC are implemented by the employer. However, this option should be used as a last resort and only in limited circumstances, such as when cessation of the facility operation may cause serious harm or danger to public health or safety.

Persons with Community or Direct Exposure to COVID-19 Cases

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).

In general, any symptom-free person with a history of possible or known exposure should observe respiratory and hand hygiene and social distancing; wear a mask (including in shared spaces inside the home for the traveler and all household members); self-observe; and avoid contact with persons at risk of poor outcome (unless they live in the same home and had the same exposure) for a full 14 days, whether tested or not. Additional recommendations include:

- Unvaccinated persons with close contact with a confirmed COVID-19 case should quarantine at home for 14 days after last exposure (even if test result is negative). Based on local circumstances and resources, this time frame can be reduced to 10 days after last exposure, or 7 days after last exposure with a negative test result. Fully vaccinated persons are exempt from this recommendation.
- Persons returning from domestic or international travel should remain at home or in a comparable setting and self-quarantine for 10 days after travel (7 days if the posttravel test result is negative). Fully vaccinated persons and those who tested positive in the past 3 months and met isolation-discontinuation criteria are exempt from this recommendation.

A quarantine or stay-at-home period of 14 days after travel or last contact (with or without testing) nearly eliminates transmission risk but may be not be practical in all situations and compliance may be difficult. A fully vaccinated health care worker with a high-risk patient exposure does not need to be excluded from work but should complete 2 viral tests collected immediately and then again 5 to 7 days after exposure. Health care worker (regardless of vaccination status) with a known travel- or community-associated exposure (where quarantine is recommended for unvaccinated persons) should be excluded from work for 14 days after their last exposure. Of note, health care workers in either of the above situations are not required to quarantine outside of the workplace if they meet the criteria below. The aforementioned alternative strategies do not eliminate all risk. See Testing for pretravel and posttravel testing recommendations.

Fully vaccinated persons with an exposure to someone with suspected or confirmed COVID-19 are not required to quarantine if they have remained symptom-free since the current COVID-19 exposure but should still self-monitor for 14 days following an exposure. If compatible symptoms develop, a full clinical evaluation for COVID-19, including SARS-CoV-2 testing is indicated.

Persons without a known exposure risk but with potential unrecognized exposure in the community should observe social distancing and self-observe; an employer may choose to apply the aforementioned stricter recommendations to these persons as well.

Household members of a symptom-free person in self-quarantine following a potential exposure are not considered to be at-risk contacts but should consider following the aforementioned recommendations. They may continue their daily activities (e.g., work or school) while continually monitoring their health and seeking medical attention if symptoms develop. However, businesses may conservatively opt to implement restrictions on a case-by-case basis.

Caregivers of a suspected or confirmed case should take additional precautions to include the use of disposable gloves, gowns, and medical masks and the proper disposal of these items.

Special Considerations

Travel Restrictions and Advisories

Different levels of travel restrictions are in effect in almost all countries and include closed land borders, closed airports, medical clearance (including testing) required for entry, and internal restrictions (e.g., national or regional lockdowns or curfews) within countries. More than 230 countries (including the US) now require arrivals to have a recent negative COVID-19 viral test result

either for entry into the country or to be exempt from quarantine or other restrictions upon arrival. Although antigen testing may be more readily available, only PCR test results are accepted by most countries; more than 35 countries are now accepting antigen test results as well. Travel recommendations range from avoiding nonessential travel to avoiding all travel to all countries.

All nationals, residents, and foreigners older than 2 years (regardless of vaccination status) arriving in the US from any country (except American Samoa, Guam, Northern Mariana Islands, Puerto Rico, and the US Virgin Islands) must have a negative COVID-19 viral test result or antigen test result from a test taken within the 3 calendar days prior to the day of departure; a humanitarian exemption may be granted in extremely limited circumstances. In case of flight delay, a retest may be necessary to meet the 3-day rule. Travelers with previous COVID-19 infection can instead present documentation of recovery, which includes 1) laboratory proof of a positive COVID-19 viral or antigen test result from a test taken within 3 months prior to arrival, confirming the diagnosis at the time of illness; and 2) a physician's attestation of symptom-onset date and the subsequent meeting of isolation-discontinuation criteria. Airline personnel will verify testing results (which may be paper or electronic) at the point of boarding. For arrivals in the US via 1 or more connecting flights, testing must be done in the 3 days before the first flight if all flights are on a single passenger record and each connection (layover) is no longer than 24 hours. For connecting flights booked with separate passenger records or with any layover longer than 24 hours, the test must be taken in the 3 calendar days before the day of departure of the final flight to the US. Passengers transiting the US and those who have already been vaccinated are subject to the same testing requirements. Waivers, effective for 14 days at a time, may be granted to originating countries lacking SARS-CoV-2 testing capacity. Persons arriving in the US by air should also self-quarantine for 7 to 10 days (depending on a voluntary postarrival test result); fully vaccinated persons are exempt from this recommendation.

Several practical issues for the new requirements should be considered. A positive test result prior to return to the US will necessitate at least a 10-day delay in return. Subsequent progression to need for hospitalization in a country with stressed capability will lead to adverse outcomes or death. Last-minute seats on sold-out flights to the US will frequently be available due to positive test results in confirmed passengers. Travelers on short trips may have a test taken on the departure date at home and the result (available electronically) will remain valid for the return flight until midnight on the third day following (e.g., Monday morning test valid until Thursday evening). Risk of in-flight transmission will be reduced but not eliminated; false negatives in those very recently infected will continue to occur, especially with antigen tests.

Globally, the intensity of internal disruption varies widely across different countries and between administrative levels within countries. Strategies include stay-at-home orders, curfews, closures of gyms, bars, restaurants, hair salons, and nonessential shops, limitations on group sizes, limitations on internal travel, or restrictions on business, social, or religious gatherings. Even with slow reopenings, social distancing measures will remain in place in many countries.

Table: Vendors Offering Nonprescription (Traveler Initiated) At-Home Sample Collection Kits (Antigen and NAAT)

Vendor/Lab	Test Name/URL	Sample Type	Cost	Shipping to Lab if Required	Results[1]
Tests that meet US CDC telehealth criteria for air travel and US ENTRY/RE-ENTRY REQUIREMENTS (viral antigen test)					
Abbott Diagnostics	BinaxNOW COVID-19 Ag Card Home Test (different from self-test version) https://www.emed.com/products/covid-at-home-testkit-six-pack	Nasal swab	USD150 (per 6 test pack)	In-home results	Digital (15 min)
Ellume	Ellume COCVID-19 Home Test cvs.com and in stores or https://www.azova.com/testing/ellume/ Test can be purchased with video observation from Azova or test kit can be purchased from CVS and video observation purchased separately from Azova for USD15	Nasal swab	USD39 at CVS USD50 at Azova	In-home results	Digital (15 min)
Tests that can be used to meet country entry requirements but *do not* meet US CDC criteria for US Entry/Re-entry Requirements (antigen and NAAT tests)					

1. For tests that require shipping to a laboratory for processing, time to receipt of test results may vary with demand; check immediately prior to shipping to ensure receipt of result on personal device prior to flight departure if needed.

Vendor/Lab	Test Name/URL	Sample Type	Cost	Shipping to Lab if Required	Results[1]
Everlywell	COVID-19 Test Home Collection Kit DTC https://www.everlywell.com/products/covid-19-test/	Nasal swab (remote supervision)	USD109	Overnight to lab	Digital (24-48 hrs after receipt at lab)
Let's Get Checked	LetsGetChecked Coronavirus (COVID-19) Home Collection Kit https://www.letsgetchecked.com/us/en/home-coronavirus-test/	Nasal swab	USD89	Overnight to lab	Digital (24-72 hrs after receipt at lab)
Kroger	Kroger Health COVID-19 Test Home Collection Kit https://www.thelittleclinic.com/home-testing/	Nasal swab (remote supervision)	USD99 or employer or benefit provider ID code required	Overnight to lab	Digital (24-48 hrs after receipt at lab)
Fulgent	Picture COVID-19 Home Collection Kit https://picturegenetics.com/covid19	Nasal swab	USD119	Overnight to lab	Digital (24-48 hrs after receipt at lab)
LabCorp	pixel COVID-19 Test (At-Home Collection Kit) https://www.pixel.labcorp.com/covid-19	Nasal swab	USD119	Overnight to lab	Digital (24-48 hrs after receipt at lab)
QuestDiagnostics	COVID-19 Active Infection Home Collection Kit https://questdirect.questdiagnostics.com/products/covid-19-active-infection/2713afd8-3d0c-4819-b877-6880a776cc46	Nasal swab	USD125	Overnight to lab	Digital (1 wk after receipt at lab)
empowerDX	empowerDX COVID-19 Home Collection Kit DTC https://empowerdxlab.com/products/product/COVID19NPCR_F	Nasal swab	USD99	Overnight to lab	Digital (48 hrs after receipt at lab)
myLABBOX	At Home Coronavirus (COVID-19) Test – Nasal https://www.mylabbox.com/product/at-home-coronavirus-covid-19-test-nasal/	Nasal swab	USD119	Overnight to lab	Digital (2-5 days after receipt at lab)
GENETWORx	COVID-19 Nasal Swab Test Kit https://genetworx.com/lp/at-home-covid-test/	Nasal swab	USD129	Overnight to lab	Digital (48 hrs after receipt at lab)
GetMyDNA	COVID-19 Test Home Collection Kit https://getmydna.com/	Nasal swab	USD99	Overnight to lab	Digital (24-48 hrs after receipt at lab)

1. For tests that require shipping to a laboratory for processing, time to receipt of test results may vary with demand; check immediately prior to shipping to ensure receipt of result on personal device prior to flight departure if needed.

Vendor/Lab	Test Name/URL	Sample Type	Cost	Shipping to Lab if Required	Results[1]
Simplicity	http://simplicityhometest.com/	Nasal swab	USD99	Overnight to lab	Digital (24-48 hrs after receipt at lab)
Amazon	https://www.amazon.com/dp/B08ZR5XNBM/?ref_=dx_us_blog_0721_1	Nasal swab	USD40	Overnight to lab	Digital (24 hrs after receipt at lab)
myLABBOX	At Home Coronavirus (COVID-19) & Flu Viral Detection Test https://www.mylabbox.com/product/at-home-coronavirus-covid-19-flu-viral-detection-test/	Saliva	USD129	Overnight to lab	Digital (2-5 days after receipt at lab)
DxTerity	DxTerity COVID-19 Saliva At-Home Collection Kit https://dxterity.com/covid-19-test/	Saliva	USD110	Overnight to lab	Digital (24-72 hrs after receipt at lab)
Clinical Reference Laboratory	COVID-19 Saliva Test https://order.crlcorp.com/	Saliva	USD99	Overnight to lab	Digital (48 hrs after receipt at lab)
Phosphorus Diagnostics	COVID-19 RT-qPCR At-Home Saliva Test https://phosphorus.com/pinpoint-covid-19-test	Saliva	USD119	Overnight to lab	Digital (24-48 hrs after receipt at lab)
P23 Labs	P23 At-Home COVID-19 Test Collection Kit https://p23labs.com/covid-19-kit	Saliva	USD142	Overnight to lab	Digital (72 hrs after receipt at lab)
Vault	COVID-19 Test Kit https://www.vaulthealth.com/covid/consumer	Saliva (remote supervision)	USD119	Overnight to lab	Digital (24-48 hrs after receipt at lab)
Vitagene	COVID-19 Saliva Test Kit https://vitagene.com/products/covid-19-saliva-test-kit/	Saliva	USD117	Overnight to lab	Digital (72 hrs after receipt at lab)
Tests for personal use; may be carried during travel for self-diagnosis but are not valid to meet entry requirements for any country					
Abbott Diagnostics	BinaxNOW COVID-19 Antigen Self Test (different from home-test version) cvs.com, walgreens.com, walmart.com, and in stores	Nasal swab	USD24 (2 tests)	In-home results	15 min
Lucira	Lucira Check It COVID-19 Test Kit https://checkit.lucirahealth.com/	Nasal swab	USD55	In-home results	30 min

1. For tests that require shipping to a laboratory for processing, time to receipt of test results may vary with demand; check immediately prior to shipping to ensure receipt of result on personal device prior to flight departure if needed.

Vendor/Lab	Test Name/URL	Sample Type	Cost	Shipping to Lab if Required	Results[1]
Quidel	QuickVue At-Home OTC COVID-19 Test https://quickvueathome.com/	Nasal swab	USD30 (2 tests)	In-home results	10 min

1. For tests that require shipping to a laboratory for processing, time to receipt of test results may vary with demand; check immediately prior to shipping to ensure receipt of result on personal device prior to flight departure if needed.

Travax content represents decision-relevant, expert synthesis of real-time data reconciled with new and existing available advice from authoritative national and international bodies. Recommendations may differ from those of individual countries' public health authorities. Travax country-specific recommendations pertain to healthy adult travelers. Guidance regarding pediatric and special needs travelers can be found under the relevant topic in the Travax Library.