

For after hours immediate reporting and consultation: (215) 686-4514— ask for Division of Disease Control on-call staff

## INFECTIOUS DISEASE CONSIDERATIONS FOR PATIENTS WITH HISTORY OF TRAVEL

Disease	Mode of Transmission	Region of Interest <sup>1</sup>	Incubation Period (Range)	Signs & Symptoms		Initial Evaluation	Diagnostics	Treatment	Infection Control Precautions <sup>2</sup>
<b>Acute schistosomiasis (Katayama fever, bilharzia)</b>	Waterborne	<ul style="list-style-type: none"> <li>Parts of Africa</li> <li>South America</li> <li>Arabian Peninsula</li> <li>Asia</li> <li>Caribbean</li> </ul>	2-6 weeks (2-9 weeks)	<ul style="list-style-type: none"> <li>Fever</li> <li>Lethargy</li> <li>Myalgia</li> <li>Arthralgia</li> <li>Cough/wheezing</li> </ul>	<ul style="list-style-type: none"> <li>Headache</li> <li>Urticarial rash</li> <li>Diarrhea</li> <li>Eosinophilia</li> <li>Hepatosplenomegaly</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> </ul> <p><i>Consider stool ova &amp; parasite screen (often negative but may identify other causes of eosinophilia)</i></p>	<p><u>Sample</u> Stool; urine</p> <p><u>Diagnostic Test</u> Serology; IFA; ELISA</p>	<p>Praziquantel</p> <p>Consider empiric treatment</p>	Standard; Sanitary disposal of feces & urine
<b>Amebiasis (Amebic liver abscess)</b>	Fecal-oral; person-to-person (e.g., diaper-changing or sexual practices) or indirectly (e.g., eating or drinking contaminated food & water)	<ul style="list-style-type: none"> <li>Sub-Saharan Africa</li> <li>South Asia</li> <li>South America</li> </ul>	2-4 weeks (Up to several years)	<ul style="list-style-type: none"> <li>Fever</li> <li>Chills</li> <li>Abdominal pain</li> <li>Occasional history of dysentery</li> </ul>	<ul style="list-style-type: none"> <li>Hepatomegaly</li> <li>Elevated right hemidiaphragm on CXR</li> <li>Leukocytosis</li> <li>Elevated inflammatory markers</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> <li>ESR</li> <li>CRP</li> </ul> <p><i>Consider abdominal CT, stool ova &amp; parasite screen (often negative)</i></p>	<p><u>Sample</u> Stool; serum</p> <p><u>Diagnostic Test</u> Stool O&amp;P; ELISA</p>	<p>Nitroimidazoles, mainly metronidazole</p> <p>Asymptomatic patients should also be treated</p>	Standard
<b>Chikungunya/ Dengue/Other arboviruses*</b>	Mosquito-borne	<ul style="list-style-type: none"> <li>Caribbean</li> <li>Central &amp; South America</li> <li>Western &amp; South Pacific</li> <li>Australia</li> <li>Asia</li> <li>Africa</li> </ul>	<p><u>Chikungunya</u> 3-7 days (1-12 days)</p> <p><u>Dengue</u> 4-8 days (3-13 days)</p>	<ul style="list-style-type: none"> <li>Fever</li> <li>Joint pain/swelling</li> <li>Headache</li> <li>Muscle pain</li> <li>Rash</li> <li>Leukopenia</li> <li>Thrombocytopenia</li> </ul>	<p><u>Dengue hemorrhagic syndrome:</u></p> <ul style="list-style-type: none"> <li>Bleeding from nose &amp; gums</li> <li>Shock</li> <li>Respiratory distress</li> <li>Severe bleeding</li> <li>Organ failure</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> <li>Acute &amp; convalescent serologies</li> </ul>	<p><u>Sample</u> Serum</p> <p><u>Diagnostic Test</u> Serology; RT-PCR</p> <p><i>Also test for Zika &amp; other arboviruses</i></p>	<p>Supportive</p> <p>Avoid mosquito bites during first week of symptoms</p>	Standard
<b>Cholera*</b>	Waterborne	<ul style="list-style-type: none"> <li>Worldwide</li> <li>Asia</li> <li>Africa</li> <li>Haiti</li> </ul>	2-3 days (A few hours-5 days)	<ul style="list-style-type: none"> <li>Profuse, watery diarrhea</li> <li>Massive loss of fluids</li> <li>Nausea &amp; profuse vomiting</li> </ul>	<p><u>Severe cases:</u></p> <ul style="list-style-type: none"> <li>Hypoglycemia in children</li> <li>Rapid dehydration</li> <li>Acidosis</li> <li>Circulatory collapse</li> <li>Renal failure</li> </ul>	<ul style="list-style-type: none"> <li>CMP (cholera can cause severe electrolyte abnormalities &amp; acidosis)</li> </ul>	<p><u>Sample</u> Stool</p> <p><u>Diagnostic Test</u> Culture (stool); rapid antigen tests (do not replace stool culture)</p>	<p>Supportive; rehydration</p> <p>Antimicrobial agents for moderate &amp; severe cases</p>	Standard; Vaccine available for travelers to areas with active transmission
<b>Giardiasis</b>	Waterborne; person-to-person (fecal-oral route and anal sex)	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	7-10 days (3-25+ days)	<ul style="list-style-type: none"> <li>Diarrhea</li> <li>Abdominal cramps</li> <li>Frequent loose &amp; pale greasy stools</li> </ul>	<ul style="list-style-type: none"> <li>Bloating</li> <li>Fatigue</li> <li>Weight loss</li> </ul>	<ul style="list-style-type: none"> <li>Stool ova &amp; parasite screen to look for other potential causes of symptoms</li> </ul>	<p><u>Sample</u> Stool</p> <p><u>Diagnostic Test</u> EIA or DFA preferred over stool ova &amp; parasite screen</p>	<p>Metronidazole or tinidazole</p>	Standard

Disease	Mode of Transmission	Region of Interest <sup>1</sup>	Incubation Period (Range)	Signs & Symptoms		Initial Evaluation	Diagnostics	Treatment	Infection Control Precautions <sup>2</sup>
<b>Hemorrhagic fever (Ebola, Marburg, Lassa fever)*</b>	Animal exposure; person-to-person (direct contact with infected blood, urine, feces, vomiting, diarrhea, semen)	<ul style="list-style-type: none"> <li>West African countries (Guinea, Sierra Leone)</li> <li>Liberia</li> <li>Uganda</li> <li>Democratic Republic of Congo</li> </ul>	8-10 days (2-21 days)	<ul style="list-style-type: none"> <li>Fever</li> <li>Severe headache</li> <li>Muscle pain</li> <li>Weakness</li> <li>Fatigue</li> </ul>	<ul style="list-style-type: none"> <li>Diarrhea</li> <li>Vomiting</li> <li>Abdominal pain</li> <li>Unexplained hemorrhage (bleeding or bruising)</li> </ul>	<ul style="list-style-type: none"> <li>Lymphopenia</li> <li>Thrombocytopenia</li> </ul>	<u>Sample</u> Blood; tissue  <u>Diagnostic Test</u> PCR; ELISA	Supportive	Standard; High-level contact & droplet; Airborne precautions for aerosol-generating procedures
<b>Hepatitis A</b>	Person-to-person (fecal-oral)	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	28 days (15-50 days)	<ul style="list-style-type: none"> <li>Jaundice</li> <li>Fever</li> <li>ILI</li> <li>Fatigue</li> <li>GI symptoms</li> <li>Nausea vomiting</li> </ul>	<ul style="list-style-type: none"> <li>Abdominal pain</li> <li>Dark urine</li> <li>Tender hepatomegaly</li> </ul> <u>Severe cases:</u> <ul style="list-style-type: none"> <li>Fulminant hepatitis</li> <li>Liver failure</li> </ul>	<ul style="list-style-type: none"> <li>CMP (elevated LFTs &amp; bilirubin)</li> <li>Hepatitis serologies</li> </ul>	<u>Sample</u> Serum  <u>Diagnostic Test</u> Serology (IgM only)	Supportive  PDPH will coordinate post-exposure prophylaxis (PEP) for close contacts <sup>4</sup>  HepA vaccine: >12 mos HepA IG: <12 mos; may be co-administered w/ vaccine for high risk persons >40 yrs	Standard; Contact precautions if patient is diapered (gloves, gown)
<b>HIV*</b>  <i>*Consider acute HIV in all travelers presenting with fever*</i>	Person-to-person (sexual; bloodborne; in utero)	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	Acute seroconversion syndrome: 1-4 weeks post-exposure	<u>Acute seroconversion:</u> <ul style="list-style-type: none"> <li>Fever</li> <li>Malaise</li> <li>Sore throat</li> <li>Rash</li> </ul>	<ul style="list-style-type: none"> <li>Myalgia</li> <li>Mono-like syndrome</li> <li>Lymphadenopathy</li> <li>Maculopapular rash</li> </ul>	<ul style="list-style-type: none"> <li>HIV Ag/Ab</li> <li>HIV RNA qualitative if acute HIV infection is suspected</li> </ul>	<u>Sample</u> Blood; serum  <u>Diagnostic Test</u> Rapid test	ARVs; prophylaxis of opportunistic infections; viral load monitoring	Standard
<b>Leptospirosis</b>  <i>*Consider water exposures &amp; animal contacts*</i>	Ingestion of/contact with contaminated soil, vegetation, water, urine, fluids, or tissues of infected animals	<ul style="list-style-type: none"> <li>Worldwide, particularly in areas with recent flooding</li> </ul>	5-14 days (2-30 days)	<ul style="list-style-type: none"> <li>ILI (fever, myalgia)</li> <li>Vomiting</li> <li>Diarrhea</li> <li>Jaundice</li> <li>Rash</li> <li>Conjunctivitis</li> <li>Bleeding</li> <li>Jaundice</li> <li>Meningitis</li> <li>Myocarditis</li> </ul>	<ul style="list-style-type: none"> <li>Pancreatitis</li> <li>Leukocytosis</li> <li>Thrombocytopenia</li> <li>Anemia</li> <li>Proteinuria &amp; hematuria</li> <li>Renal failure</li> <li>Hepatic failure (elevated bilirubin &amp; LFTs)</li> <li>Occasionally GI or respiratory symptoms</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> <li>UA</li> <li>Blood culture</li> <li>CSF culture</li> <li>Acute &amp; convalescent serologies</li> </ul>	<u>Sample</u> Serum; blood; CSF; urine  <u>Diagnostic Test</u> Microscopic Agglutination Test (MAT); PCR; culture  <i>PDPH can assist with laboratory testing<sup>4</sup></i>	Antibiotics (Doxycycline or Penicillin G)  Consider empiric treatment	Standard; Disinfection of articles soiled with urine
<b>Malaria</b>  <i>*Rule out malaria in febrile travelers coming from endemic areas, regardless of malaria prophylaxis use*</i>	Mosquito-borne; in utero; blood transfusions	<ul style="list-style-type: none"> <li>Africa</li> <li>Central &amp; South America</li> <li>Parts of the Caribbean</li> <li>Asia</li> <li>Eastern Europe</li> <li>South Pacific</li> </ul>	6-30 days (Weeks to >1 year, depending on species)	<ul style="list-style-type: none"> <li>Fever</li> <li>Headache</li> <li>Malaise</li> <li>Arthralgia</li> <li>Jaundice</li> <li>Cough</li> <li>Seizures</li> <li>Coma</li> <li>Splenomegaly</li> <li>Hypoxia</li> </ul>	<ul style="list-style-type: none"> <li>Tachypnea</li> <li>Altered mental status</li> <li>Leukopenia, left shift of WBC count</li> <li>Thrombocytopenia</li> <li>Hypoglycemia</li> </ul> <i>Children commonly present with GI symptoms (abdominal pain, nausea, vomiting, diarrhea)</i>	<ul style="list-style-type: none"> <li>Urgent blood parasite evaluation (includes rapid test &amp; smear)</li> <li>CBC</li> <li>CMP</li> </ul> <i>Consider antibiotic resistance testing</i>	<u>Sample</u> Blood; serum  <u>Diagnostic Test</u> <ul style="list-style-type: none"> <li>Microscopy</li> <li>RDT</li> <li>PCR</li> </ul> <i>False negative rapid test can occur, particularly for non-falciparum malaria</i>	Antimalarials	Standard

Disease	Mode of Transmission	Region of Interest <sup>1</sup>	Incubation Period (Range)	Signs & Symptoms		Initial Evaluation	Diagnostics	Treatment	Infection Control Precautions <sup>2</sup>
<b>Measles*</b>	Airborne (droplet spread, direct contact with nasal or throat secretions)	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	14 days (7-21 days)	<ul style="list-style-type: none"> <li>Prodromal fever</li> <li>Conjunctivitis</li> <li>Cough</li> <li>Coryza (prior to rash onset)</li> <li>Diarrhea</li> <li>Maculopapular rash</li> </ul>	<ul style="list-style-type: none"> <li>Koplik spots on buccal mucosa (prior to rash onset)</li> <li>Tachypnea, hypoxia</li> <li>May be complicated by pneumonia, diarrhea, &amp; encephalitis</li> </ul>	<ul style="list-style-type: none"> <li>CXR if respiratory symptoms present</li> <li>Clinical diagnosis</li> </ul>	<u>Sample</u> Nasopharyngeal mucus, urine; blood;  <u>Diagnostic Test</u> RT-PCR; serology	Vitamin A supplementation in children  PEP for contacts	Standard; Immediate airborne isolation
<b>Novel coronavirus (SARS, MERS-CoV)*</b>	Human-to-human; droplet	<u>SARS</u> <ul style="list-style-type: none"> <li>Asia (China)</li> </ul> <u>MERS-CoV</u> <ul style="list-style-type: none"> <li>Arabian Peninsula<sup>3</sup></li> </ul>	5-6 days (2-14 days)	<ul style="list-style-type: none"> <li>Fever</li> <li>Cough</li> <li>Shortness of breath</li> </ul>	<ul style="list-style-type: none"> <li>Other symptoms may include diarrhea, nausea, vomiting, renal failure, coagulopathy, or pericarditis</li> </ul>	<ul style="list-style-type: none"> <li>CXR</li> </ul>	<u>Sample</u> Sputum; bronchoalveolar lavage; bronchial wash or tracheal aspirate; nasopharyngeal swabs; stool (lower priority); serum  <u>Diagnostic Test</u> RT-PCR	Supportive  Treat for community-acquired pneumonia until ARDS & other infections are excluded	Standard; Droplet; Airborne
<b>Rickettsial infections (Rickettsiae africae, R. conorii, R. typhi)</b>	Tick-borne	<ul style="list-style-type: none"> <li><i>R. africae</i>: Sub-Saharan Africa &amp; eastern Caribbean</li> <li><i>R. conorii</i>: Mediterranean &amp; Caspian Littoral States, Middle East, India, &amp; Africa</li> <li><i>R. typhi</i>: Worldwide</li> </ul>	5-7 days (Up to 10 days)	<ul style="list-style-type: none"> <li>Fever</li> <li>Headache</li> <li>Myalgia</li> <li>Rash</li> <li>Eschar at bite site</li> <li>Lymphadenitis</li> </ul>	<u>Scrub typhus:</u> <ul style="list-style-type: none"> <li>Cough</li> <li>Bleeding</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> <li>Acute &amp; convalescent serologies</li> </ul>	<u>Sample</u> Serum  <u>Diagnostic Test</u> Serology; IFA  <i>Other causes of fever &amp; eschar-like lesion: anthrax, African trypanosomiasis</i>	Consider empiric doxycycline	Standard
<b>Tuberculosis (Latent &amp; Active Pulmonary)</b>	Airborne (droplet spread, direct contact with nasal or throat secretions)	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	Weeks to years	<ul style="list-style-type: none"> <li>Fever</li> <li>Decreased appetite</li> <li>Weight loss</li> <li>Fatigue</li> <li>Cough or chest pain with pulmonary TB</li> </ul>	<ul style="list-style-type: none"> <li>Findings may be subtle or nonspecific</li> <li>Presentation varies based on age &amp; host immunity</li> <li>Young children at risk for disseminated TB &amp; TB meningitis</li> </ul>	<ul style="list-style-type: none"> <li>PPD</li> <li>CXR</li> </ul>	<u>Sample</u> Sputum  <u>Diagnostic Test</u> Latent TB: Skin test  Active Pulmonary: AFB	Contact ID & ICP immediately when TB is suspected  Drug susceptibility testing	Airborne for infectious individuals; Isolate family members with cough & evaluated for pulmonary TB
<b>Typhoid &amp; paratyphoid fever (enteric fever)*</b>	Foodborne; waterborne; sexual contact  <i>Pre-travel vaccine provides incomplete protection against typhoid &amp; does not protect from paratyphoid species</i>	<ul style="list-style-type: none"> <li>Worldwide in developing countries</li> <li>Asia (especially South Asia)</li> <li>Africa</li> <li>Latin America</li> </ul>	7-18 days (3-60 days)	<ul style="list-style-type: none"> <li>Fever</li> <li>Headache</li> <li>Constipation or diarrhea</li> <li>Dry cough</li> </ul>	<ul style="list-style-type: none"> <li>GI bleeding</li> <li>Intestinal perforation</li> <li>Altered mental status</li> <li>Leukopenia</li> </ul>	<ul style="list-style-type: none"> <li>Blood culture</li> <li>Stool culture</li> <li>UA</li> <li>Urine culture</li> <li>CBC</li> <li>CMP</li> </ul>	<u>Sample</u> Blood; urine; feces  <u>Diagnostic Test</u> Culture	Supportive; antibiotics  If clinically unstable & typhoid is suspected, start empiric ceftriaxone after blood cultures drawn	Standard

Disease	Mode of Transmission	Region of Interest <sup>1</sup>	Incubation Period (Range)	Signs & Symptoms		Initial Evaluation	Diagnostics	Treatment	Infection Control Precautions <sup>2</sup>
<b>Vibriosis</b>	Foodborne; water-borne	<ul style="list-style-type: none"> <li>Worldwide</li> </ul>	2-3 days (Hours-5 days)	<ul style="list-style-type: none"> <li>Watery stools</li> <li>Vomiting</li> <li>Nausea</li> <li>Abdominal pain</li> </ul>	<ul style="list-style-type: none"> <li>Cramping</li> <li>Fever</li> <li>Wound infection</li> </ul>	<ul style="list-style-type: none"> <li>Stool culture</li> </ul>	<u>Sample</u> Stool  <u>Diagnostic Test</u> Culture	Supportive; antibiotics for severe cases	Standard
<b>Yellow fever*</b>	Mosquito-borne; blood transfusions	<ul style="list-style-type: none"> <li>Parts of Africa</li> <li>Central &amp; South America</li> </ul>	3-6 days	<ul style="list-style-type: none"> <li>Fever</li> <li>Chills</li> <li>Headache</li> <li>Nausea, vomiting, dizziness</li> </ul>	<ul style="list-style-type: none"> <li>Faget sign</li> <li>Leukopenia</li> <li>Leukocytosis</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> </ul>	<u>Sample</u> Serum  <u>Diagnostic test</u> Serology; RT-PCR	Supportive  Avoid mosquito bites during first week of symptoms	Standard; Vaccine available & recommended for travel to endemic areas
<b>Zika</b>	Mosquito-borne; sexual contact; in utero; blood transfusions	<ul style="list-style-type: none"> <li>Worldwide</li> <li>Parts of Africa</li> <li>Asia</li> <li>the Caribbean</li> <li>Central America</li> <li>Pacific Islands</li> <li>Mexico</li> <li>South America</li> </ul>	2-7 days (2-12 days)	<ul style="list-style-type: none"> <li>Mild illness with low-grade fever</li> <li>Maculopapular rash</li> <li>Conjunctivitis</li> <li>Arthralgia</li> </ul>	<ul style="list-style-type: none"> <li>Neurologic complications, rarely (GBS, encephalitis, meningitis, myelitis)</li> <li>Other symptoms may include myalgia, headache, or retro-orbital pain</li> </ul>	<ul style="list-style-type: none"> <li>CBC</li> <li>CMP</li> <li>Consider LP if signs of neurologic disease or congenital infection</li> </ul> <u>Congenital infection</u> <ul style="list-style-type: none"> <li>Head circumference</li> <li>Ophthalmology exam</li> <li>Automated ABR</li> </ul>	<u>Sample</u> Serum; urine  <u>Diagnostic Test</u> PCR; IgM  <i>Also test for dengue &amp; chikungunya</i>	Supportive; acetaminophen for initial treatment until dengue ruled out  Discuss prevention of sexual transmission (condom use)  Avoid mosquito bites during first week of symptoms	Standard

\*Report suspected & confirmed cases within 24 hours to PDPH.

- Contact PDPH or review CDC information if you have questions or are unsure of region of interest.
- Standard precautions refer to infection control practices that apply to all patient care (i.e. hand hygiene, use of personal protective equipment, cough etiquette, patient placement, & safe injection practices).
- Countries in or near the Arabian Peninsula with MERS-CoV cases: Bahrain, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE), & Yemen.
- Contact the Philadelphia Department of Public Health (PDPH) Division of Disease Control (DDC) at 215-685-6748 (215-685-4514 after hours).

Abbreviations & Acronyms					
ABR	Auditory Brainstem Response	CXR	Chest X-Ray	MAT	Microscopic Agglutination Test
AFB	Acid-Fast Bacilli	DFA	Direct Fluorescence Antibody	PPD	Purified Protein Derivative
ARDS	Acute respiratory distress syndrome	EIA	Enzyme Immunoassay	PEP	Post-Exposure Prophylaxis
CAT scan (CT)	Computerized Axial Tomography	ELISA	Enzyme-Linked Immunosorbent Assay	RT-PCR	Reverse Transcription-Polymerase Chain Reaction
CBC	Complete Blood Count	ESR	Erythrocyte Sedimentation Rate	RDT	Rapid Diagnostic Test
CMP	Comprehensive Metabolic Panel	IFA	Immunofluorescent Assay	UA	Urinalysis
CRP	C-Reactive Protein	LFTs	Liver Function Tests	WBC	White blood cell
CSF	Cerebrospinal Fluid				

For more detailed health information regarding international travel, visit the [CDC Yellow Book](#).



This matrix was adapted from the reference document *Select Infectious Diseases to Consider in Febrile Patients with History of Travel* developed by Leslie Enane and CHOP.