March 9, 2020

Provisional Guidance: Clinical Care and Healthcare Infection Prevention and Control for COVID-19

The following provisional guidance has been adopted by Oregon Health Authority (OHA) to:

- Provide information on clinical symptoms, risk factors, management, and treatment of COVID-19;
- Provide guidance on diagnostic testing for COVID-19;
- Prevent healthcare-associated spread of COVID-19;
- Support the safe management of patients with suspect or known COVID-19 in healthcare settings;
- Optimize the use of the personal protective equipment (PPE) and healthcare resources needed to protect healthcare personnel (HCP).

Guidance will be updated as needed to reflect what is known about the epidemiology, clinical course, and transmission of the virus that causes COVID-19. For the purposes of this guidance, HCP is defined as “all persons, paid and unpaid, working in healthcare settings engaged in patient care activities, including patient assessment for triage, entering examination rooms or patient rooms to provide care or clean and disinfect the environment, obtaining clinical specimens, handling soiled medical supplies or equipment, and coming in contact with potentially contaminated environmental surfaces.” (Centers for Disease Control and Prevention (CDC), 2020)

Clinical Presentation and Risk Factors

Symptoms of COVID-19 include fever, cough, myalgia or fatigue, and shortness of breath. Less common symptoms include sore throat, headache, and diarrhea. A fever will likely present during the clinical course, but current evidence suggests that less than half of hospitalized COVID-19 patients present with fever. Severity of illness may worsen in the second week of infection. The SARS-CoV-2 virus is believed to spread mainly between people in close contact or through respiratory droplets produced by coughs and sneezes. The virus can survive on surfaces but can be rendered inactive by routine cleaning and disinfection procedures (See “Disinfection in the Healthcare Setting” Section). The household secondary attack rate (the portion of a household that becomes infected after a household member is confirmed to have COVID-19), has been estimated at 15%. Children may be just as likely as adults to become infected but are less likely to have severe illness.

An overall case fatality rate of 2.3% has been reported among patients from China, but this is largely from hospitalized patients and is likely to be an overestimate. To date, case fatality rates outside of mainland China have been notably lower. Risk factors for severe illness are not clear, but older patients and those with chronic medical conditions may be at higher risk for severe disease. The CDC has provided details on the clinical presentation of COVID-19.

Clinical Management and Treatment

Not all patients with COVID-19 infection will require hospital admission. If supportive care at home is considered, clinicians should ensure the patient is medically stable, has appropriate caregivers available, and is able to safely self-isolate at home. The CDC has provided additional recommendations for home care.
No specific treatment for COVID-19 is currently available. Clinical management should include prompt infection prevention and control measures and supportive medical care. No antiviral treatment is approved for COVID-19 disease. Remdesivir is an investigational broad-spectrum antiviral treatment that is currently under study to treat hospitalized adults with COVID-19. A February 25, 2020 National Institute of Allergy and Infectious Diseases (NIAID) press release provides more information on this clinical trial.

**Recommendations for Outpatient and Urgent-Care Settings (Not Including Emergency Departments)**

**Outpatient Facilities Triage and Evaluation**


At this time, the Oregon Health Authority offers the following guidance in order to reduce the potential risk of community spread of COVID-19 through outpatient facilities:

**For All Patients**

When all patients call to schedule a visit, screen the patient by phone for:

1. Fever and/or acute respiratory symptoms. Delay routine or non-urgent visits until symptoms have resolved.
2. Exposure to confirmed cases or travel to areas with sustained (ongoing) transmission. See CDC website for updated information on affected geographic regions.
3. Exposure to local areas where community transmission has been documented. See OHA website for Oregon-specific COVID-19 epidemiology.

**For Patients with Acute Respiratory Illness or Fever** (See Figure 1 for additional guidance):

1. Consider utilizing telemedicine to evaluate these patients when available.
2. Recommend home care with symptom monitoring without face-to-face evaluation when clinically appropriate. Encourage patients to stay home and avoid congregate settings until their symptoms resolve.
3. For patients requiring clinical evaluation, consider alternative routes of entry/exit and alternative waiting areas in order to minimize interaction with other patients and healthcare workers.
4. Implement respiratory hygiene and cough etiquette. Surgical or procedural masks should be readily available at all entries/exits and clear signage in relevant languages should reinforce their use.
5. Patients should not wait in lobbies or waiting rooms. Immediately place patients in an airborne infection isolation room, if available, or in a private room with the door closed. Ideally, the patient should not be placed in any room where room exhaust is recirculated within the building without HEPA filtration.
6. HCP evaluating patients suspected to have COVID-19 should don appropriate personal protective equipment (PPE), see “PPE Requirements for Healthcare Personnel in Outpatient Settings” below.
7. Consider strategies to minimize the number of HCP interacting with patients, e.g., alternative check-in procedures and asking providers to room patients.
8. The patient room should be left empty for at least two hours after patient has vacated. If HCP need to enter the room before two hours has elapsed, PPE should be used as described below. Cleaning and disinfection should occur before returned to routine use.
Figure 1. Suggested Approach for Healthcare Worker Personal Protective Equipment (PPE) While Evaluating Patients with Acute Respiratory Infection in Ambulatory Settings

- Patient has fever (subjective or documented) or signs/symptoms of lower respiratory illness
  - Consider alternatives to face-to-face triage and visits (e.g., telephonic and telehealth interactions)
  - Patient requires in-person clinical evaluation?
    - No
      - Recommend supportive care at home. Ensure suitability for home care:
        - Medically stable
        - Appropriate caregivers available
        - Ability to safely self-isolate at home
    - Yes
      - Patient masked (surgical or procedure) upon facility entry, and remains masked during entire encounter
      - Minimize time patients with respiratory illness spend in waiting areas and keep at least 6ft away from others. Place in a private room with door closed.

1. **Wear PPE when entering patient room:**
   - Goggles or face shield
   - Surgical or procedure mask
   - Gloves
   - Gown, if available

2. **If aerosol-generating procedures (Appendix I) are necessary:**
   - Negative pressure room during specimen collection. If not available, private room with door closed.
   - Change mask to respirator (N-95 mask or PAPR).
   - Remove patient mask only when necessary.

3. Perform meticulous hand hygiene before and after all patient care.

See [CDC guidance for home care](https://www.cdc.gov) for additional information.
PPE Requirements for HCP in Outpatient Settings

The virus that causes COVID-19 can spread in healthcare settings. PPE policies should, first and foremost, protect those in the healthcare setting from exposure. PPE supplies should be used responsibly to ensure they are available for patients and procedures for which they are most needed. PPE strategies should be supplemented by source control, including the rapid identification of patients with fever or respiratory symptoms, placement of a regular facemask on symptomatic patients, and isolation in a private room with the door closed. Effective hand hygiene and standard precautions should always be used.

Minimum PPE necessary to evaluate patients with fever or respiratory symptoms:

- Face mask (i.e., surgical or procedural mask)
- Eye protection (face shield or goggles)
- Gown
- Gloves

Some procedures warrant a higher level of protection. See “Aerosol-Generating Procedures in Outpatient Settings”.

Aerosol-Generating Procedures in Outpatient Settings

Aerosol-generating procedures (AGPs) are medical procedures that have been associated with an increased risk of transmission in healthcare settings. (See Appendix I for a non-exhaustive list of AGPs). In general, AGPs should be avoided in outpatient settings unless absolutely necessary for patient care. If AGPs are necessary, HCP should use gown, gloves, eye protection, and N95 mask or higher respiratory protection. Only HCP required for the procedure should be present. If available, an airborne infection isolation room should be used.

Collection of Nasopharyngeal or Oropharyngeal Swabs in Outpatient Settings

Any type of patient care that involves prolonged, close contact or direct contact with respiratory secretions should be minimized. If specimen collection is necessary, nasopharyngeal swabs (NP) and oropharyngeal (OP) swabs can be performed using contact and droplet precautions with surgical mask and eye protection, and do not require the use of an N95 respirator. Institutions may choose to use an N95 respirator based on risk assessment of the patient. Severely ill patients who will be transferred to a higher level of care should not be tested in an outpatient setting.

Recommendations for Hospitals (Includes Emergency Departments [EDs] and Inpatient Settings)

Hospital Triage and Evaluation

Travel screening

Though travel to geographic areas with sustained transmission is no longer the primary mode of exposure to the virus that causes COVID-19, we recommend continued implementation of a travel screen that identifies those with international travel in the last 14 days (30 days is also a reasonable time frame). This will facilitate identification of travel-associated cases and will support ongoing high-impact pathogen preparedness in the healthcare setting.

Rapid triage

When possible, instruct patients to call ahead and inform clinic or hospital staff when they have symptoms and exposure history (i.e., travel or ill contacts) consistent with suspect COVID-19. Remind patients to adhere to respiratory etiquette and to don a mask upon entry to the facility. Ensure PPE and an appropriate room are available to minimize exposure to other patients and providers. If an AIIR is not immediately available, identify a separate, well-ventilated space, instruct patients to remain at least 6 feet from other individuals, and observe respiratory etiquette, including placement of a face mask.
Place signs or posters at entryways, requesting that the patient wear a mask and apply hand sanitizer if they exhibit fever, cough, difficulty breathing, or shortness of breath. Request that they notify healthcare personnel (HCP) immediately if, in the prior 14 days, they were in an area experiencing community sustained transmission of the virus that causes COVID-19 or if they had close contact with a COVID-19 case.

**Tracking people who enter patient room**

Facilities should be prepared to maintain a log of HCP and visitors who enter the room of any patient with known or suspected COVID-19. Contact information should be collected to facilitate follow up, if needed.

**Communication plans**

Develop an internal communication plan to alert key internal staff (e.g., hospital epidemiologists, infection preventionists, frontline staff, occupational health, laboratory, nursing supervisors, leadership, etc.) promptly about known or suspected cases of COVID-19.

A confirmed case of COVID-19 is immediately reportable to your LPHA (see LPHA contact information in Appendix II). See “Testing Considerations” section below for instructions about when to call LPHA and OHA regarding testing.

**PPE Requirements for HCP in Hospitals**

As in outpatient settings, hospital policies should, first and foremost, protect those in the healthcare setting from exposure. PPE supplies should be used responsibly to ensure they are available for patients and procedures for which they are most needed. PPE strategies should be supplemented by source control, including the rapid identification of patients with fever or respiratory symptoms, placement of a regular facemask on symptomatic patients, and isolation in a private room with the door closed. Effective hand hygiene and standard precautions should always be used.

Minimum PPE necessary to evaluate patients with respiratory illness, suspected COVID-19, or confirmed COVID-19:

- Face mask (i.e., surgical or procedural mask)
- Eye protection (face shield or goggles)
- Gown
- Gloves

Some procedures warrant a higher level of protection. See “Aerosol-Generating Procedures in Hospitals”.

**Aerosol-Generating Procedures (AGPs) in Hospitals**

AGPs (Appendix I) are much more common in ED and hospital settings. When conducting AGPs for patients with fever or respiratory symptoms, or with known or suspect COVID-19, HCP should utilize standard, contact, and airborne precautions, including:

- N95 mask or higher respiratory protection (includes powered air purifying respirators [PAPRs])
- Eye protection (face shield or goggles)
- Gown
- Gloves

Whenever possible, AGPs should be performed in an airborne infection isolation room (AIIR). If a hospital is treating multiple persons under investigation or confirmed cases of COVID-19, AIIRs should be prioritized for those with serious illness.

To minimize risk associated with these procedures, AGPs should be planned and bundled, when possible. Only HCP required for the procedure should be present.
It is unknown how long infectious aerosols remain in the air when a patient remains in the room following an AGP. Continuation of standard, contact, and airborne precautions with eye protection for a period after aerosol-generation has ceased may provide time for contaminant removal. Hospitals should assess room air changes/hour to inform the duration of this period.

Collection of Respiratory Specimens in Hospitals

See “Testing Considerations” Section below for information regarding specimen collection and prioritization for COVID-19 Testing.

Respiratory specimen collection procedures known to generate aerosols (e.g., sputum induction, bronchoscopy, open suctioning) require standard, contact, and airborne precautions with eye protection, as discussed above. For other modes of respiratory specimen collection, HCP should perform a risk assessment of the patient. Severely ill and heavily symptomatic patients may require standard, contact, and airborne precautions with eye protection for specimen collection procedures, including NP and OP specimen collection.

General Recommendations for All Healthcare Settings

Work Exclusion and Monitoring Determinations

Once a COVID-19 case has been confirmed, work exclusions and home monitoring plans should be implemented immediately. In general, staff with the following risk factors should be excluded from work and monitored for fever or respiratory symptoms:

- Providing patient care that did not include aerosol-generating procedures without a regular facemask or respirator and eye protection (goggles or face shield).
- Providing patient care that involves extensive contact with the patient and their immediate environment (e.g., logrolling, toileting) without using gown and gloves in addition to facemask or respirator and eye protection.
- Providing patient care that did include aerosol-generating procedures without all elements of full PPE requirements (respirator, eye protection, gown, and gloves).

Facilities could consider allowing asymptomatic HCP who have had an exposure to a COVID-19 patient to continue to work after consultation with their occupational health program. The decision to allow continued work should be made on an individual basis, with a thorough risk assessment. The risk assessment should include the HCP’s level of exposure, ability to reliably undergo daily active monitoring, and the constraints that HCP furlough would place on the facility’s workforce. Re-assignment of the HCP to non-patient care duties during the monitoring period should be considered. These HCP should still undergo daily active monitoring prior to starting work. If HCP develop even mild symptoms consistent with COVID-19, they must cease patient care activities, don a facemask (if not already wearing), and notify their supervisor or occupational health services prior to leaving work.

The following table provides considerations for sample HCP activities to aid in decision making regarding exclusion and monitoring plans. Examples are generally limited to those that involve patient care, as a key preemptive step is limiting the entry into rooms of patients with fever or respiratory symptoms to essential care providers only. Other factors may alter risk determination, including but not limited to patient symptoms, ability to comply with source control, and duration of exposure. (See Table 1, next page)
### Table 1: Work Exclusion and Monitoring Plan Considerations for HCP Activities by PPE and Source Control Utilization

<table>
<thead>
<tr>
<th>Sample Activity</th>
<th>Personal Protective Equipment Used by HCP</th>
<th>Source Control</th>
<th>Work Restriction</th>
<th>Follow up and Monitoring Plan</th>
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<tbody>
<tr>
<td></td>
<td>Respirator**</td>
<td>Regular Mask</td>
<td>Goggles or Face Shield</td>
<td>Gown</td>
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<td>HCP walks by patient, but has no direct contact with patient or their secretions</td>
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<tr>
<td>Brief check-in interactions or brief entrance into patient room without contact with patient secretions</td>
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<td>Patient care with aerosol-generating procedures (Appendix I)</td>
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<tr>
<td>Patient care with aerosol-generating procedures (Appendix I)</td>
<td>Any variation that does not include the full recommended PPE (respirator, eye protection, gown, and gloves)</td>
<td>N/A</td>
<td>Work exclusion**</td>
<td>Active monitoring for 14 days after last exposure**</td>
</tr>
</tbody>
</table>

**Green: no identifiable risk; Yellow: low-risk exposure; Red: exposure that warrants active monitoring/potential work exclusion

**+** designated PPE category used throughout the activity, assumes appropriate donning, doffing, and hand hygiene; **−** designated PPE category not used; **+/−** designated PPE category either used or not used, action steps not contingent on this item.

**Standard respiratory illness precautions:** All HCP should stay home if ill.

**HCP self-monitoring:** HCP perform self-monitoring for fever or respiratory symptoms for 14 days from last exposure under the supervision of a healthcare facility’s occupational health or infection control program.

**Active monitoring:** Daily communication to assess for the presence of fever or respiratory symptoms (cough, sore throat, or shortness of breath) conducted by healthcare facility’s occupational health or infection control program.

**Respirator:** Refers to respiratory protection at least as protective as a fit-tested NIOSH-certified disposable N95 filtering facepiece respirator, including NIOSH-approved powered air-purifying respirators (PAPRs).

**Provision of patient care that requires extensive direct contact with the patient and their immediate environment (e.g. logrolling, toileting) should include use of gown, gloves, and appropriate hand hygiene. Failure to use gown and gloves in addition to specified PPE would elevate exposure risk and may warrant work exclusion and active monitoring.

**Work exclusion period should be 14 days from last exposure. Facilities could consider allowing asymptomatic HCP who have had an exposure to a COVID-19 patient continue to work after consultation with their occupational health program. The decision to allow continued work should be made on an individual basis, with a thorough risk assessment. See text for more discussion (“Work Exclusion and Monitoring Determinations.”).
Recommended Instructions for HCP Potentially Exposed to COVID-19

The following are topic areas to guide education for potentially exposed HCP:

- **Discuss why these steps are being taken:** If work exclusion and active monitoring are necessary, convey using non-punitive language why work exclusions are essential to prevent healthcare-associated infections. Explain that the purpose of ongoing home monitoring is to ensure that HCP do not develop symptoms of COVID-19 in the 14 days after the last exposure. For those with low-risk exposures, convey the importance of self-monitoring for fever or respiratory symptoms.

- **Discuss the plan for work exclusion and monitoring:** Discuss facility processes for work exclusion, active monitoring and self-monitoring.

- **Educate on appropriate monitoring for symptoms:** Instruct HCP on how to monitor for fever or respiratory symptoms. Stress that HCP should not come to work while ill. Ensure that excluded HCP have thermometers and, if supply allows, consider providing regular masks for use should they become symptomatic.

- **Educate on social distancing:** For those with exposures that necessitate work exclusion and active monitoring, educate on the need to avoid congregate settings, the sharing of personal household items, and any airplane travel for 14 days after the last exposure.

- **Develop plan for what the HCP will do if they become symptomatic:** Educate HCP to self-isolate in their home should they become symptomatic. Mildly symptomatic HCP are not required to seek care solely for the purposes of COVID-19 testing, but they should do so if they require medical evaluation or intervention. If seeking care, the HCP should first call their doctor or local hospital to inform that they are being monitored for COVID-19 and will need follow-up medical care and testing.

Managing PPE Supply Issues

Healthcare facilities should develop processes to facilitate ongoing PPE inventory, ensuring that facility supply-chain managers and infection prevention staff are in communication about PPE shipment or order delays as well as increased PPE needs to support training, fit testing, and patient care. Should a potential PPE shortage be identified, the following steps should be taken:

1. Define severity of the shortage. Note when interruptions in clinical operations would occur if the shortage were to persist.
2. Review [CDC guidance](https://www.cdc.gov) on PPE supply optimization, and implement conservation strategies as appropriate.
3. Determine whether other PPE vendors can be utilized and review current contract specifications.
4. Leverage mutual-aid agreements and memoranda of understanding (MOUs) to obtain PPE supply from healthcare partners.
5. If all internal and partner-based options to obtain sufficient PPE supply have been exhausted, contact your local public health authority.

Visitor Policy Recommendations

Facility visitor policies may need to become more restrictive should COVID-19 spread in the community become sustained or widespread. Current recommendations are that facilities should limit to a maximum of two visitors per patient, prohibiting visits from sick individuals and those under 12 years of age. Limit points of entry to healthcare facilities to ensure appropriate signage and/or check in stations are accessible.

Environmental Infection Control in Healthcare Settings

Dedicated medical equipment should be used for patients with suspect or known COVID-19. Routine cleaning and disinfection procedures (i.e., pre-clean surfaces prior to applying an EPA-registered, hospital-grade
disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product’s label) are appropriate for COVID-19 in healthcare settings.

A list of EPA-registered, hospital-grade disinfectants with known effectiveness against coronaviruses can be found here.

**Discontinuation of Precautions**

This guidance is currently under review by OHA.

Discontinuation of transmission-based precautions for hospitalized patients and of home-based precautions for non-hospitalized patients should be discussed with Public Health (Appendix II). Please see:

- CDC Interim Guidance for Discontinuation of Transmission-Based Precautions Among Hospitalized Patients with COVID-19
- CDC Interim Guidance for Discontinuation of In-Home Isolation for Patients with COVID-19

**Testing Considerations**

*Testing at the Oregon State Public Health Laboratory (OSPHL)*

National guidance recently expanded the criteria for COVID-19 testing, deferring the testing decision in large part to clinicians. COVID-19 testing is available at OSPHL, but capacity is limited. The following procedures are in place to facilitate testing at OSPHL.

1) **Automatic testing approval:** If patients meet the following criteria, complete online form (directions here), and send a virology form with specimen to OSPHL:
   - Clinical need for admission to your facility; and
   - Evidence of viral lower respiratory infection; and
   - Tested negative for influenza.

   Testing will be performed if criteria are met and proper documentation as described above is submitted. Phone approval by LPHA or OHA is not necessary in this situation.

2) **Obtaining test approval by public health:** Call your local public health authority (LPHA) to discuss testing if patient does not meet the criteria for automatic testing approval above, but has fever or respiratory symptoms and:
   - Is a person under monitoring as defined by the LPHA; or
   - HCP with exposure to a confirmed COVID-19 case; or
   - Non-HCP with close contact (within 6 feet for a cumulative hour or more or direct contact with respiratory secretions) to a confirmed COVID-19 case; or
   - Traveled to affected geographic areas within 14 days of symptom onset; or
   - Has been exposed to a high-risk setting (e.g., cruise ship, long-term care facility, or other institutional setting) or are involved in a respiratory illness cluster in a facility or institution.

This guidance will be updated with changing capacity. Additional guidance can be found here.

*Testing at commercial laboratories*

A number of commercial laboratories are offering COVID-19 testing. As of March 9th, this includes LabCorp, Quest, and University of Washington Virology Laboratory (Appendix III). Commercial test information, including sensitivity/specificity and cost, should be obtained from the commercial laboratory offering the test. Clinicians may consider commercial testing at their discretion if the patient does not meet criteria for testing at OSPHL, would like to be tested, and has already presented for care (OHA does not recommend presentation to healthcare settings for testing if not seeking medical care). Appropriate precautions should be followed for
specimen collection. COVID-19 cases identified outside of state testing processes are immediately reportable to the local public health authority (LPHA). See appendix II for contact numbers.

**Choice of specimen collection**
Choice of specimen collection may rely upon the setting where specimen collection occurs. Non-hospital settings will generally be collecting nasopharyngeal (NP) and oropharyngeal (OP) specimens. Specimens should be collected as soon as possible after a COVID-19 person under investigation is identified, regardless of symptom onset date.

Specimens from the lower respiratory tract (e.g., bronchial lavage, endotracheal aspirate, sputum) are preferred from a test sensitivity perspective, but are generally associated with increased aerosol generation, so specimen collection decisions should be driven by patient care needs and should be collected under appropriate precautions (See “Collection of Respiratory Specimens” Sections above). Upper respiratory tract specimens (NP, OP) are acceptable for testing. In consideration of its testing capacity and demand, OSPHL may test only the most preferred specimen of several submitted.

Current guidance for specimen collection, handling, and transport is posted on OSPHL’s Lab Test Menu and in the CDC guidance on specimen collection, storage, and handling.

**PPE for respiratory specimen collection**
See “Collection of Respiratory Specimens” sections for outpatient and hospital settings above.
Appendix I

Aerosol-generating procedures* include, but are not limited to:

- Intubation, extubation and related procedures such as manual ventilation and open suctioning
- Tracheotomy/tracheostomy procedures (insertion/open suctioning/removal)
- Bronchoscopy
- Surgery and post-mortem procedures involving high-speed devices
- Some dental procedures (such as high-speed drilling)
- Non-invasive ventilation (NIV) such as bi-level positive airway pressure (BiPAP) and continuous positive airway pressure ventilation (CPAP)
- High-frequency oscillating ventilation (HFOV)
- High-flow nasal oxygen (HFNO), also called high-flow nasal cannula
- Induction of sputum
- Medication administration via continuous nebulizer

*Note: this list is not exhaustive. Please discuss activities not described with your infection prevention department.
## Appendix II

Local Public Health Authority Contact Numbers

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<tr>
<th>County</th>
<th>General</th>
<th>CD Nurse</th>
<th>CD Fax</th>
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*operated jointly as North Central Public Health District*
Appendix III

University of Washington Virology Laboratory
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Quest Diagnostics
Phone: (866) MY-QUEST (866-697-8378)