Why Should My Practice Use PCR Testing?

Many healthcare providers might be on the fence about using Real-Time Polymerase Chain Reaction PCR (RT-qPCR) testing for their patients. The reason for this hesitancy could be that they do not fully understand the benefits, the cost, or how it works with other forms of testing.

RT-qPCR is a form of molecular testing that identifies the pathogen(s) present using very sensitive and specific RT-qPCR assays. This type of testing allows providers to differentiate between bacterial and viral pathogens. Rapid detection using RT-qPCR increases the chances of selecting the appropriate treatment regimen from 30% to 99.9%. RT-qPCR is a diagnostic tool and has its place along with rapid point-of-care diagnostic tests (rapid flu and strep testing) and traditional culture and sensitivity testing.

PCR in Combination with Culture and Sensitivity Testing

Many molecular labs offer culture and sensitivity testing in combination with the RT-qPCR tests to confirm the genotype while also confirming the phenotype. Knowing the presence of any specific antimicrobial resistance genes guides the clinician to determine what medication NOT to use. In addition, phenotyping antimicrobial susceptibility is the definitive guide to direct what to use. Having both pathogen genotype and phenotype assures a timely, accurate diagnosis and sustainable treatment plan.

Benefits

Diagnostic Assurance

When patients report abnormal symptoms, it can often be a puzzle to figure out the cause of the problem. If misdiagnosed, the incorrect medicine or dosage may be prescribed, and infections can linger or become severe. Utilizing RT-qPCR testing provides highly accurate identification of infections as well as the appropriate treatment and dosage for that patient's infection. Thus, allowing them the right treatment the first time.

These tests can often help a clinician confirm their diagnosis or even rule out the presence of infections. There are also occasions where these lab tests will identify secondary infections, which is vital for clinicians to know to help treat their patients appropriately.

Antibiotic Stewardship

The largest benefit of providing diagnostic testing is that it promotes antibiotic stewardship. With the level of accuracy of this testing, you no longer have to worry about prescribing too little or too much medication. You hit the target the first time, helping the patient get better faster and stay better longer.

The Center for Disease Control and Prevention (CDC) has discovered over 2/3 of all antibiotics prescribed are inappropriate and 1/3 are unnecessary.[1] Antibiotic stewardship is a coordinated program that promotes the appropriate use of antibiotics, improves patient outcomes, and decreases the spread of infections caused by multidrug-resistant organisms.

The misuse and overuse of antibiotics is one of the world's most pressing public health problems. Infectious organisms adapt to the antimicrobials designed to kill them, making the drugs ineffective. People infected with antimicrobial-resistant organisms are more likely to have longer, more expensive hospital stays, and may be more likely to die as a result of an infection. Any medical practice promoting antibiotic stewardship should be utilizing RT-qPCR testing.

[1]"CDC: 1 in 3 antibiotic prescriptions unnecessary." Centers for Disease Control and Preventions, 3 May 2016, https://www.cdc.gov/media/releases/2016/p0503-unnecessary-prescriptions.html

Cost

All labs have a different cost and billing structure. Some allow you to order individual pathogens while others require ordering of full panels. Most labs will bill the patient's insurance directly, and depending on that patient's plan coverage the patient may receive a bill for the portion they are responsible for. For this reason, it is important to ensure your patient knows when tests are being ordered and that they may have some responsibility for any costs that their insurance doesn't cover.

Barriers to Use

Some clinicians cite expense as the biggest barrier to using these tests. RT-qPCR tests have gotten much more cost-efficient and generally cost 40% less than traditional culture and sensitivity testing.

Other clinicians feel pressure from sick patients to get an antibiotic prescription and a steroid shot before leaving the clinic. While patients may think this will make them better, it's important not to jump the gun on prescribing antibiotics until the test results verify the pathogen so the right treatment and dosage can be prescribed the first time. Most lab tests are available within 24 hours.

We have also heard that some providers think RT-qPCR is too sensitive. Many RT-qPCR assays can detect as little as 1-5 copies of DNA or RNA. RT-qPCR rarely results in a true false-positive result. If the nucleic acid is there, RT-qPCR will likely detect it. Contamination is a big concern when using these assays. That does not mean the pathogen is the culprit. The clinician still has to determine if that fits the clinical presentation.

If your practice is still on the fence about the benefit of using RT-qPCR, take a minute to read what several healthcare providers say about this testing: info@complexlabs.org

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