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COVID-19 Test Prep

What Employers Need Know Before Implementing Employee Screening Programs

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Despite rising COVID-19 case numbers in certain areas of the United States, the country is attempting to re-open, and companies are implementing various back-to-work programs. To protect employees and mitigate the risk of spreading the disease, many U.S. employers have deployed or are considering deploying COVID-19 (SARS-CoV-2) diagnostic testing for routine employee screening; however, the majority of available test methods were originally designed to be ordered and administered by medical and laboratory professionals to establish a COVID-19 diagnosis, not for routine employee screening. Because of the inherent limitations of COVID-19 tests, there are significant risks for employers who do not take the time to understand the implications of the data these tests provide.

Before implementing a testing program, personnel and health and safety managers need to consider the strengths and weaknesses of the currently available testing for SARS-CoV-2, the pitfalls associated with interpreting test results, and the novel management questions posed by the screening process itself. Only then can employee testing be appropriately integrated into a complete back-to-work program that includes a written plan, employee symptom and temperature screening, exposure control, disinfection/cleaning procedures, mask use, contact tracing, and other elements on a case-by-case basis.

Choosing the Right Test

There are two primary types of tests for COVID-19: molecular (viral diagnostic tests) and serological (antibody tests). Molecular tests detect the genetic material (RNA) of the SARS-CoV-2 in samples primarily collected via nasopharyngeal (deep nasal) swabbing, although some tests can use other types of nasal swabs or saliva. Since molecular tests detect genetic material and do not measure the virus infectivity directly, they cannot be used alone to indicate that a person is clinically ill with COVID-19, but only the presence or absence of the viral genetic material. Thus, this information is typically used as one part of a diagnostic evaluation of ill patients to plan for medical care.

Serological tests detect antibodies that the human body produces to fight the infection in blood samples. Serological tests can show that a person was exposed to the virus at some point but do not necessarily provide information about a person's immunity or health status. Most importantly, both viral tests and serological tests will only tell you someone's status at the time the sample was collected, and that status will change as the amount of time that has passed from first exposure/symptom onset increases. This information must be used in context with other signs and symptoms experienced by the patient. This adds complexity to the application of these tests to an asymptomatic or pre-symptomatic workforce.

It's important to note that these tests, both molecular and serological, were authorized as in vitro diagnostic tests by the U.S. Food and Drug Administration (FDA) through the Emergency Use Authorization mechanism for use on patients who are suspected of having COVID-19, for example those patients displaying symptoms. Tests claiming accuracy when used in asymptomatic populations are only beginning to receive authorization to come onto the market. These are the types of test that would best serve efforts to screen in a workplace setting. These tests must currently be prescribed by a licensed health care provider and analyzed in a laboratory that meets the requirements of the Clinical Laboratory Improvement Act (CLIA). Employers cannot simply purchase tests for unlicensed persons to administer on site.

You Tested. Now What?

Even when conducted properly, a variety of factors can influence the accuracy of a test, thus interpretation of results requires careful consideration of many variables. The performance data for each test is provided by the manufacturer, and different tests have different levels of accuracy. Additional factors beyond proper execution that can influence test performance include the quality and type of sample collection and the time and conditions of sample transportation. Another important aspect of interpreting results is the time between testing and the onset of symptoms. Tests can return a negative result if taken too early in the infection, even though the patient is in fact infected. If the test is taken too late after infection recovery, tests can show no antibodies present when the person has in fact developed them. Thus, employers must be careful about which test they use as well as how they acquire and handle samples. A certified laboratory must conduct the test, and a healthcare provider must interpret the results in the context of a patient's clinical history.

Testing information should not be used in a vacuum but rather as a piece of an overall back-to-work program embodied in a living document that is modified as the situation evolves. Employers must consider the application of testing to their population of workers and how that will be implemented. Those tasked with ensuring the safety of employees as they work on site are faced with several tough questions whose answers depend on knowledge not previously necessary for their task. For example, since most of the molecular tests require several days for results, how will you manage your tested workforce when results are pending? Do you have the appropriate medical and technical support to manage the risks of either over- or under-responding to the results of your testing program?

How Exponent Can Help

Exponent's multi-disciplinary team of virologists, epidemiologists, physicians, and public health professionals can assist in navigating the complex issues associated with workforce COVID-19 testing.

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