6 July 2020

IOGP-IPIECA Health Committee statement on COVID-19 testing in the oil and gas industry

Introduction

As the COVID-19 pandemic evolves, the increased need for testing presents significant challenges. Limited societal readiness, lack of nationally available testing infrastructure, and the validity of tests used are some of the principal hurdles to establishing an effective and consistent testing regime. The confusion is further amplified by the rapid development and deployment of new testing methods and protocols by many labs and manufacturers, with limited verification of their validity by national and international bodies or peer reviewed research.

This document aims to provide clarity on the current types of testing, the opportunities and limitations they provide, and a method to assess if testing is appropriate for a specific operational site or organization. It will be reviewed monthly, or sooner if appropriate. The user is encouraged to verify that they are in possession of the latest revision before use. A revision history is included on the last page of this document.

Quarantine and COVID-19 Testing

Quarantine is a critical tool to manage the risk of COVID-19 spread at a worksite. It separates a person or group of people reasonably believed to have been exposed to a communicable disease (COVID-19) but not yet symptomatic, from others who have not been so exposed, to prevent the possible spread of the communicable disease. Even with testing, (limited) quarantine measures will remain necessary.

Using quarantine personnel protocols for up to 14 days prior to departure to an offshore or remote worksite is accepted as prudent practice. Quarantine may be used as a control – with or without testing – to provide additional assurance that infected employees are not traveling to a remote worksite. Within the 14-day period, those who are infected will likely show clinical symptoms necessitating further testing and isolation. For those who remain asymptomatic, some will still have carried the virus; however, if they remain asymptomatic for the entire quarantine period, they are unlikely to be able to infect others after the quarantine ends.

PCR testing near the start of the quarantine period may be used to reduce the required quarantine time, whereas testing towards the end of the quarantine period may be used for increased assurance of personnel being COVID-19 free.

For those who have tested positive for the virus or those who developed symptoms while in quarantine, the duration of quarantine (in isolation) may need to be extended. For people that remain asymptomatic after testing positive, isolation for up to 10 days following the test is recommended. After this period, the person is unlikely to pose any risk of infection to others even if retesting is not available to confirm the absence of the virus. For those developing symptoms, they should be isolated until 48 hours after they have become completely symptom free or as per medical advice.

Types of tests

There are two broad types of tests available, each described in more detail below. The tests are based on detecting part of the genetic material of the virus (PCR) or proteins associated with the virus (Antigen Tests) and tests aimed at detecting the body's immune response to the virus (Antibody Tests). These different detection methods impact how soon after infection the test can become positive and how accurate these results are. Figure 1 shows the different detection methods and timeframes.
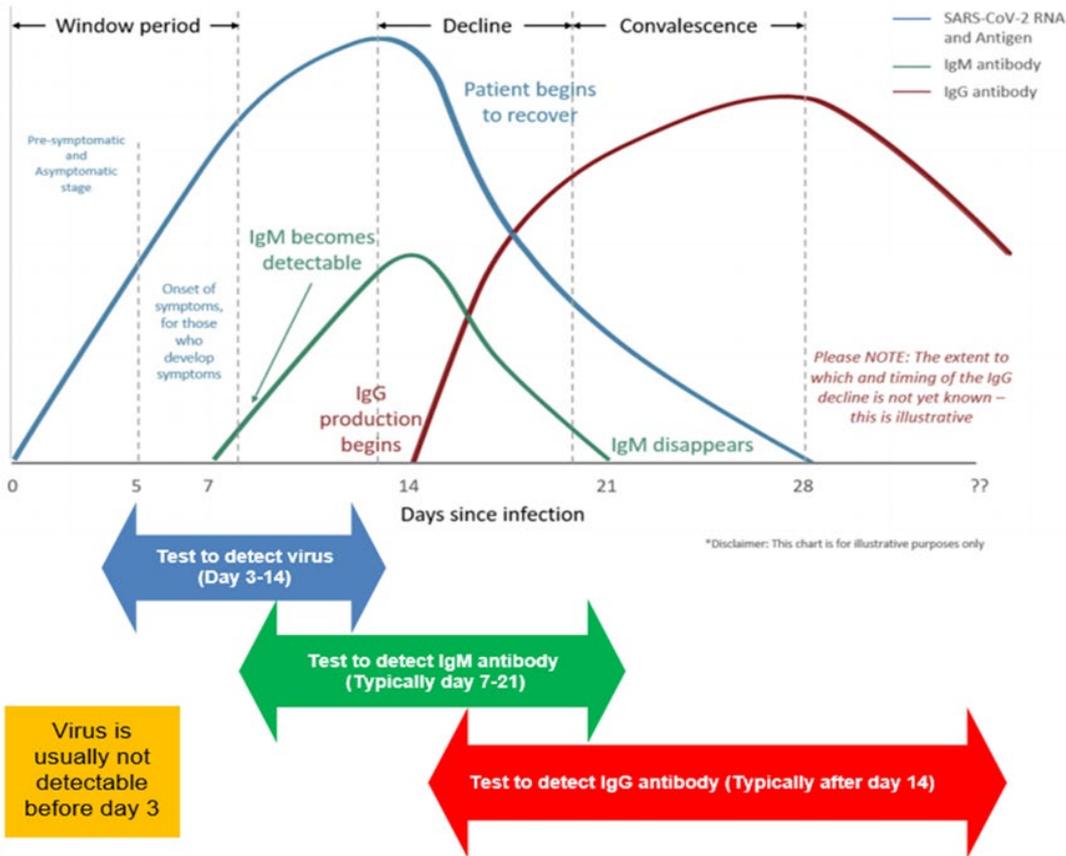
Figure 1. Virus detection methods and timeframes

Available tests commonly used for COVID-19:

1) Testing for the SARS-Cov2 virus by detecting RNA (PCR) or virus proteins (Antigen Tests)
   - PCR tests (to detect SARS-CoV2-RNA, laboratory based and point of care) are used to verify whether a suspected case carries the virus, even while asymptomatic, and has high specificity for COVID-19. These are the preferred tests for diagnostic purposes in relation to key control measures in our industry. The key limitations have been societal availability of tests, turnaround times, and the sampling method. They rely on a nose/throat swab sample that, when done wrong, increases the number of false negative test results. As such, self- sampling is discouraged. False negatives are also more common in the first days after exposure to the virus when virus levels are still below the detection limit or not in the sample even when taken correctly (common in the first 48-72 hours after the virus enters the body and infection begins) (See Figure 1).
   - Antigen Tests detect the presence of viral proteins (antigens) expressed by the COVID-19 virus in a sample from the respiratory tract of a person. The antigen(s) detected are expressed only when the virus is actively replicating; therefore, these tests are best used to identify acute or early infection. Antigen tests are highly specific, but not as sensitive as RT-PCR. Overall, in alignment with WHO, use of virus antigen tests is not recommended for diagnosis of SARS-CoV-2 infection.
2) Antibody tests to detect IgM and IgG are rapidly becoming available, are easy to use by non-health professionals, and scalable. Limitations apply to the antibody tests as they may have high rates of false negative results due to the immune response only appearing days after someone already has high levels of virus in their body. Additionally, antibody tests are also unable to differentiate between active disease and the post disease stage. Due to variable test quality (specificity and sensitivity) and a lack of understanding of the extent of immunity (if any) to COVID-19 after having recovered from the illness. This makes plans to use these tests to identify those who are immune to COVID-19 premature.

Considerations for the oil and gas industry when deciding on the use of testing for managing the risk of infected parties going to (remote) locations/installations:

Any decision on how and when to use diagnostic tools to manage the COVID-19 risk in the workplace will need to be evaluated by a qualified medical professional who considers the type of test available and its limitations, the date and technique of sample collection, the history of any symptoms, and contact with infected people. The below points summarize the high-level considerations in making these decisions.

PCR tests:

1) PCR tests are the best diagnostic method, particularly in the early phase of a viral infection, but still have limited availability in some countries and should be directed to those who need it most. As such, prioritized testing specific for our industry becomes a moral issue when not strictly indicated on medical grounds. It therefore needs to be aligned with priorities and guidance set by local health authorities. In some areas, oil and gas workers are clearly identified as critical societal workers and will get priority. In others, this is not the case.
2) PCR testing can be used to shorten quarantine times prior to starting work from the regular 14 days to -in some countries- less than a week without significantly increasing

the risk of missing an infected person when compared to the risk at the end of a 14-day quarantine period. It is most accurate when sampled by a health professional after 48-72 hours of quarantine to assure that all societal exposures prior to quarantine are captured. When results come back negative from the lab, this single test can be used to end quarantine early, although some quarantine time will remain necessary.[1]

3) PCR testing is a valuable tool to test close contacts of confirmed cases in the workplace.

4) People with COVID-19 symptoms should be tested as per relevant national health guidance.

5) A key priority for the use of such tests in our industry remains to keep offshore or remote installations COVID-19 free. Therefore, the operators of such installations need to ensure and facilitate a coordinated testing/quarantine approach for all personnel wishing to travel to such installations.

6) If an inconclusive test result is obtained, it should be considered positive. Personnel which are asymptomatic for 10 days following a positive test can be considered non-infectious. Timing of the test may vary depending on exact travel history and there may be cases or situations which necessitates several tests during the quarantine period.

Antigen tests

1) Antigen tests are highly specific, but not as sensitive as RT-PCR tests. This means there is a higher chance of false negatives. The data reviewed on antigen tests for other respiratory diseases, such as influenza, does not give a high level of confidence in their sensitivity. At this moment, the US FDA has approved one antigen-based test for SARS-CoV-2, of which test specificity and sensitivity are not published and have been determined on a small number of clinical samples.

2) Antigen test performance also depends on factors such as the time from onset of illness, the concentration of virus in the specimen, the quality of the specimen collected from a person and how it is processed, and the precise formulation of the reagents in the test kits.

3) Overall, in alignment with World Health Organization practice, use of virus antigen tests is not recommended for diagnosis of SARS-CoV-2 infection.

Antibody tests

1) Antibody (IgM and IgG) tests are rapidly evolving, readily available and - whilst accuracy of the different products on the market remains debatable - the current World Health Organization advice is that they are mainly suitable to help large population scale samples. The tests are not considered sufficiently accurate for screening workers or controlling outbreaks, due to the high rate of false negatives and variable quality of the different brands of tests. While the quality of testing kits is improving, the fundamental aspect of antibody testing is an assessment of the body's immune

---

[1] *Per guidance issued by OGUK: The positive predictive value (PPV) of a positive PCR test for an offshore worker isolating at home with symptoms is 93%: in other words, the test confirms they are very likely to have COVID-19, and they should continue isolation for 7 days. For the same worker, a negative test has a negative predictive value (NPV) of 76% (in other words, 24% of negative tests are false negative results), which is not considered sufficient to confidently return the worker offshore. The worker should continue to isolate for 7 days.*

response to the virus. Therefore, tests will always have higher levels of false negative results in the days following infection, as the body's immune response will still be low.

2) Use of antibody tests to identify people who could be considered immune to COVID-19 reinfection, based on the presence of antibodies, is not recommended as the science on acquired immunity post infection is still inconclusive. A level of immunity following infection is likely to protect people to some extent, but how much and for how long is yet to be accurately determined.

3) Antibody tests can be used for mapping of controlled larger populations that can include several companies/facilities in the same work area, but should not be used for diagnostic purposes. The results may give insights into prevalence within a single company, location or population and may also provide valuable information for (inter)national health bodies.

IOGP position

1) IOGP views PCR testing as the most accurate and preferred testing tool currently available for diagnostic purposes. This testing method should be considered for use in those situations where there is a legal requirement to do so, where (safety) critical functions for business continuity that cannot be done remotely are performed, and where risk of COVID-19 may be elevated (e.g., offshore, remote and site accommodation). A key consideration remains the availability of PCR testing for low risk groups, without taking testing resources away from societies at large. It needs to be aligned with priorities set by national health authorities.

2) IOGP does not support general diagnostic antibody testing for (remote) locations/installations unless for mapping of controlled larger populations as referred to above.

3) IOGP would like to see a "harmonized" approach to testing for COVID-19 across the oil and gas sector, but recognizes constraints set at the national health authority levels. We will therefore continue to monitor the development of testing methods/protocols and offer updates to this guidance as and when needed.

Note

This document has been prepared using collective insights from the IOGP/IPIECA Health Committee, with due regard to the positions and information from various international bodies like WHO/CDC, national health bodies, Oil and Gas UK, and others.

The need to urgently address issues in the rapidly moving COVID-19 situation means this document has not gone through the usual approval/review cycles at IOGP, and will be under regular review as the situation evolves. This document is intended to provide guidance to harmonize protocols for testing and quarantine for the oil and gas industry. Many local factors, such as prevalence of the virus, the type of operation/location, accommodation, and response capability affect the total risk picture. Therefore, measures to manage the risk to ALARP (As Low As Reasonably Practicable) may differ across different locations, including the timelines for quarantine.

Users are encouraged to use the document in support of public health advise and any legal frameworks that may exist from national authorities.

Revision History

Initial issue: 4th May 2020

1st Revision: 11th May 2020 to include IPIECA logo.

2nd Revision: 6th July 2020: Updated to include Figure 1 and provide additional information on quarantine policies and antibody and antigen rapid test usage.

About IOGP

The International Association of Oil & Gas Producers (IOGP) is the voice of the global upstream industry. Oil and gas continue to provide a significant proportion of the world's energy to meet growing demands for heat, light and transport.

Our Members produce 40% of the world's oil and gas. They operate in all producing regions: the Americas, Africa, Europe, the Middle East, the Caspian, Asia and Australia.

We act as a global forum in which our Members identify and share knowledge and good practices to achieve improvements in every aspect of health, safety, the environment, security, and social responsibility. We use this knowledge and experience to serve industry regulators as a global partner for improving safety, environmental, and social performance.

Contact us

Registered office	City Tower	T +44 (0)20 3763 9700
	40 Basinghall St, 14th Floor	reception@iogp.org
	London EC2V 5DE	www.iogp.org
	United Kingdom	
Brussels office	Avenue de Tervuren 188A	T +32 (0)2 790 7762
	B-1150 Brussels	eu-reception@iogp.org
	Belgium	www.iogp.org
Houston office	19219 Katy Freeway	T +1 (713) 261 0411
	Suite 175	reception@iogp.org
	Houston, Texas 77094	www.iogp.org
	United States	