Use of Testing for SARS COVID-19 in Return to Work and Employment Situations

This document is aimed at Employers, managers and Health & Safety to aid them in understanding the tests available, what they will tell you in a Return to Work situation and when to use or not to use them.

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These notes are intended as an *aide memoire* for OH Physicians and other professionals who are called upon to advise employers about the role of testing as part of a return to work plan. It is understandable that employers will want to be seen to be doing all that they can to ensure safety, but it is important to ensure that interventions and plans are meaningful and based upon best evidence.

Introduction

1. It is important to consider that the technology related to testing is continually changing, as is the evidence that supports decision-making in this area. It is necessary to review and to check for updates for any advice.

2. Testing in a workplace situation is different from the testing that is carried out on a population basis, whether to identify infected persons or to track the progress of a disease through the population. The advice in this document is not intended as comment upon national testing strategies or public health considerations, including the "Track and Trace" process.

3. As progress is made towards normalising workplaces and returning to more usual work attendance and practices, concern will increase regarding the possibility of employees contracting Covid-19 at work or passing the infection to colleagues, contacts or customers.

4. The opportunity for transmission of infection increases as soon as relative isolation is removed and individuals congregate, whether in offices and workplaces, on public transport or in refreshment areas. The principles of social distancing will still provide protection, however the possibility of these being applied universally is limited.

5. Each workplace is different and it is important that employers and senior managers consider whether they have access to suitably expert medical advice to ensure that plans are scientifically sound and in particular do not provide false reassurances or lead to inappropriate relaxation of distancing and other protections.

Practical aspects

6. Utilising different approaches, testing can identify those who have an active infection and those who have been exposed to the infection, whether or not they have displayed obvious symptoms at any stage. To determine what testing strategy might be appropriate for a workplace, it is necessary to consider:

a. What is the purpose of testing and what advantage/outcome is desired?

b. What form of testing will best address the requirement?

c. Does the current technology deliver the outcome required or can the results be interpreted in a manner that allows the aims at (a) to be achieved?

d. When and how should the process be evaluated and reviewed to ensure that there is suitable audit (in order to adapt or stop testing if indicated) and that developments are incorporated as quickly as possible?

7. The purpose of testing may seem obvious, it is to ensure that an individual who is a potential risk does not attend work, however the limitations of testing (see below) are such that this aim is unlikely to be achieved to a degree that is sufficiently accurate to be relied upon as a preventive measure. It is the case that, with current technology, it will be necessary to continue other preventive measures, so if the sole aim is to allow relaxation of restrictions, testing may not be an appropriate intervention.

8. Where there is a question over an individual who may have symptoms or who has been informed that they may have been in contact with an infected individual, it should now be possible for that person to be tested within the established testing centre process. Employers should ensure that the expectation that employees and workers comply with "Track and Trace" instructions is made absolutely clear and that it is a requirement of attendance at any workplace.

9. There are two primary approaches to testing:

    a. Testing for the presence of virus, which is the test that is undertaken at organised testing centres, known as the "PCR" test. This test:

        i. Is positive in an individual who has active virus in the cells of the area tested (usually nose/throat)

        ii. Usually indicates active infection

        iii. May be positive in an individual who has no symptoms

        iv. May not be positive when an individual is first "infected" and therefore a potential infection risk. Risk that the individual can infect others before test is positive. Difficulty that repeated testing can be necessary to ensure that infected individuals are identified.

        v. Advantage is that a positive test is a good indication that the individual is in an active phase of infection.

        vi. Testing is reasonable accurate, with few "false negatives". Some "false positives" may occur later in infection when the test identifies large virus fragments that are not actually infective.

    b. Testing for the presence of antibodies, which indicate a reaction of the immune system to infection. Antibody testing:

        i. May not indicate infection in the earlier stages of the disease, so not a useful test to identify cases.

ii. Indicates a response of the body that is likely to provide a measure of immunity to future infection, though it is not yet clear to what degree the individual is protected and how long protection may last.

iii. Accuracy (sensitivity – ability to identify those with antibodies – and specificity – ability to identify those without antibodies) is variable.

iv. There have been a great number of antibody tests on the market, the majority of which are not sufficiently accurate to be useful. Recent action by MHRA to remove these from sale (ref) highlights the difficulty.

v. As a general rule, laboratory-based immunology testing is of improving and potentially useful accuracy, but the pin-prick "point of use" tests are of limited, if any use in the present state of development.

Accuracy of testing

10. Principles to apply:

a. The concept of accuracy is complicated by the fact that there are a number of possibilities for any result and that, in almost all cases, there is a rate of false results for each option. Thus a test might indicate that an individual does have antibodies, but that result could be correct (true positive) or incorrect (false positive). The same applies to negative results.

b. Identifying an individual as having antibodies when they do not have them (false positive) is potentially hazardous as it offers a false reassurance and could support "risky" behaviour.

c. The situation becomes more complex because the probability of false positives becomes much higher where the number of actual cases in the population is lower. So when the infection rate in the population is low, the number of false positives may exceed the number of true positive results, giving an inaccurate impression of the situation.

d. The interpretation of testing has to be undertaken with great care, in order to understand these issue and to ensure correct conclusions are being reached.

11. Testing Programmes

a. It is likely that any workplace testing will need to be on the basis of a series of tests over a period of time.

b. Those who may have contracted an infection will be able to access testing through the NHS testing system.

c. A meaningful risk-assessment system for a workplace may include testing, but this is unlikely to be a key part in the process. Options include:

i. PCR testing to establish active infection

1. Will require repetition, as the test only identifies infection on the day of test

2. Necessary to identify the purpose of testing (i.e. to minimise the risk of infected individuals in the workplace)

3. Necessary to consider the implications of a positive test. Contact tracing may lead to many/all of team or workplace being quarantined if infection is identified.

4. Likely to be of relevance only to most “case sensitive” workplaces

ii. Immunology

1. Requires less frequent repetition; guidelines on frequency have yet to be developed.

2. Validation standards may apply after known infection (i.e. less accurate if no proven SARS CoV-2 infection)

3. Test can identify antibody production in individual. Importance of presence of antibody is not well understood.

4. May indicate immunity and that individual is not susceptible to further infection. Not proven that such individuals cannot carry or spread infection.

5. Persistence of antibody and relevant immunity are not established. Guidelines may change. Re-testing may be necessary to establish continued immunity.

6. Probably not appropriate to relax distancing or PPE requirements in relation to supposed immunity at this stage.

Conclusions

12. There is no current justification for the use of testing (Antigen or Antibody) in the risk management process related to supporting a return to work plan. Testing will not contribute to any risk-assessment process in that the implications of positive or negative tests are not sufficiently clear as to allow inclusion in a matrix.

13. There will be situations (such as care homes) in which there is mandatory testing already in place. Where employers (or their OH teams) have access to results it would be useful to ensure that these are carefully collated, with consideration of confidentiality.

14. PCR (antigen) testing would allow exclusion of asymptomatic/presymptomatic individuals, but is not a suitable measure to ensure safety, since the frequency of testing and the possibility of an individual shedding virus between tests requires that suitable other measures are in place to manage the possibility of such spread.

15. The situation will remain under review and guidance will be updated as may be required.

16. Where testing is considered as an exception to general advice, it is essential to ensure that only approved tests and suitably accredited laboratories are used. It is often difficult to convey the problems associated with non-compliant tests and the concerns that can arise. OH providers and professionals should maintain a careful approach of providing evidence-based advice and resisting becoming involved in speculative processes.