

COVID-19: TESTING STRATEGY

INTRODUCTION

Denmark and the rest of the world are still in the midst of a COVID-19 pandemic. The aim for Denmark in handling COVID-19 is to keep activity levels in society as high as possible while at the same time keeping the level of infection down. It is therefore crucial that everyone complies with the precautions, distance requirements and hygiene standards which are designed to minimise the spread of infection as much as possible.

However, it is not possible to avoid the spread of COVID-19, and when it does emerge, the focus will be on suppressing it locally before it spreads. Central to this effort is identifying those who are infected – not least through systematic contact tracing and testing – and to isolate these individuals so that the infection chains can be broken. The keywords are thus still testing, tracing and isolation.

Testing is thus a key aspect of the fight against COVID-19 in Denmark. Concurrently with the development of the epidemic and the combined efforts to curb it, it is also necessary to develop the testing strategy. This testing strategy replaces the previous strategy which was published in May 2020.

This testing strategy builds on the experience with testing during the first part of the COVID-19 epidemic. The testing strategy involves a significant expansion of testing capacity and greater robustness, and a strategic adaptation of the role that testing must play in fighting the epidemic going forward. In addition, the testing strategy builds on the following general principles:

- The testing must be proactive, and deployed where it can contribute to the greatest possible reduction in infection.
- The testing measures must be mobile and flexible, so that testing can be carried out throughout Denmark and targeted at specific locations and situations.
- The testing must be easily accessible, and citizens must receive the results quickly, so that contact tracing and isolation can be initiated.

All the above efforts have either been launched already or will be launched by the authorities in the near future. At the same time, it is to be expected that there will be an ongoing need to adjust and adapt the testing measures as the health authorities learn more about the disease and the specific development of the epidemic.

PURPOSE OF TESTING

The overall purpose of testing in connection with handling the COVID-19 epidemic can be summarised as follows:

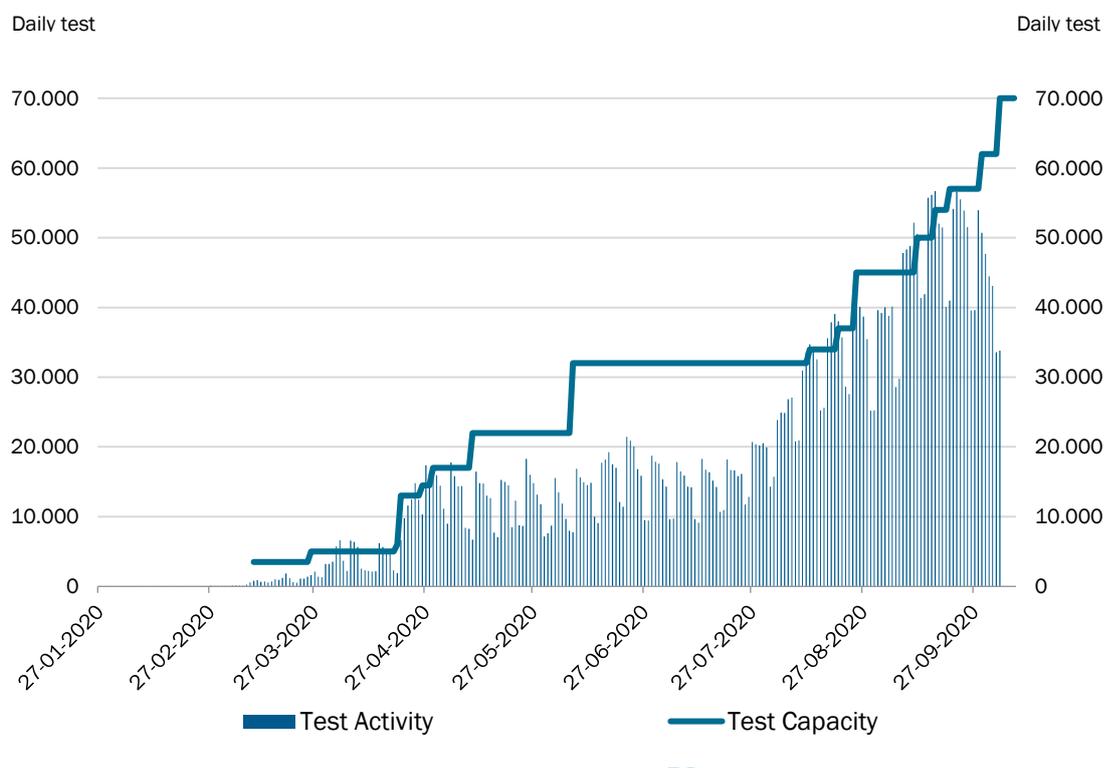
- To identify people infected with COVID-19 by means of intensive and targeted testing for the purpose of providing treatment.
- To identify and break infection chains quickly by ensuring that those infected self-isolate, by tracing close contacts, by preventing infection at, for example, nursing homes and schools, and by dealing with outbreaks.
- To protect people who are particularly vulnerable to COVID-19 from infection by systematically testing health professionals and caregivers, and by initiating targeted testing in the case of specific outbreaks.
- To monitor the extent of infection in society, including the incidence of antibodies, in order to strengthen the prerequisites for effectively fighting the epidemic.

ORGANISING THE TESTING AREA

The testing is organised in a 'health track', where the testing takes place under the auspices of the regional health services, as well as in a 'societal track' – TestCenter Danmark – which has been established as a supplement to the health track. At the moment, samples are taken at hospital departments, at regional COVID-19 clinics, at permanent testing stations, in flexible mobile units and by primary health care sector employees. The regions have the medical responsibility for the testing. The samples are generally analysed at the regional clinical microbiological departments and at laboratory facilities under Statens Serum Institut.

Since spring 2020, testing capacity in Denmark has been significantly increased. At the moment, it is possible to test up to 70,000 people a day in the societal and health tracks, which corresponds to more than 7% of the population weekly – a capacity that puts Denmark right at the top worldwide in relation to our population. Since the spring, surplus testing capacity has been available for all citizens, which has generally ensured easy access to testing without having to provide an explanation or present a doctor's referral.

Figure 1: Testing activity and testing capacity, 7 October 2020



Testing capacity is being continuously expanded to ensure that it remains robust, and so that peak periods can largely be handled without problems. It is expected that, during the autumn, total testing capacity will have a basic capacity of 70-80,000 COVID-19 tests a day. Efforts are still being made to expand total capacity in order to be able to conduct up to 100,000 tests a day at peak periods.

Work is also ongoing to secure the right physical facilities for the testing stations, sufficient staff capacity, the right balance between permanent and mobile testing stations, less dependence on a limited number of testing equipment, as well as shorter response times and waiting times, see below. For example, mobile testing capacity is being significantly expanded in order to make it possible to quickly upscale sampling capacity locally in the event of an outbreak, when the demand for testing often increases markedly.

Moreover, we are working to integrate the societal and health tracks more closely, so that citizens experience a coherent and unified system with only a few access points, easy access to testing as well as coordinated and close cooperation between the relevant stakeholders. This must help ensure a more robust set-up for the autumn and winter months, when more people will suffer from bronchial symptoms and need medical help in order to identify the causes of their symptoms so that the correct treatment can be given.

INFECTION DETECTION AND ISOLATION

Establishing that a citizen is infected with COVID-19 is a key prerequisite for being able to quickly and efficiently implement infection prevention and control measures such as self-isolation and the identification of close contacts. Testing makes it possible to detect infection in order to quickly break infection chains.

When a citizen is diagnosed with COVID-19, close contacts are quickly traced, and everyone is asked to self-isolate so that others are not infected. Infection detection involves identifying those individuals who have been in close contact with a person who has tested positive for COVID-19, and who are therefore at risk of having been infected with COVID-19 themselves.

The task is carried out by the *Coronaopsporing* (Corona Tracking) unit under the Danish Patient Safety Authority. Health professionals from *Coronaopsporing* contact everyone who has tested positive for COVID-19 to provide support with tracing close contacts.

It is also the task of *Coronaopsporing* to book tests for close contacts who contact the unit. Close contacts are offered a test on day four and day six after being exposed to infection. It is recommended that the person who has been tested self-isolates until a test result is available. This quickly clarifies whether an infected person's close contacts are infected or not. The contact tracing in *Coronaopsporing* is also supplemented by the Smitte|stop contact tracing app.

If a person needs to isolate, they self-isolate in their own home or outside their home at an external isolation facility. If at all possible, self-isolation should take place in a person's own home. However, in practice it can sometimes be difficult to self-isolate – especially for those living with people who are at risk of serious complications if they become infected with COVID-19. If it is not possible to comply with the recommendations of the Danish Health Authority for self-isolation, the municipalities are required to help people self-isolate at external isolation facilities, for example hotels, holiday centres and other commercial venues, subject to certain criteria. If it is not possible to enter into an agreement with private providers regarding the establishment and operation of isolation facilities, the municipalities will instead be able to establish and operate isolation facilities themselves in existing municipal premises. It is a voluntary decision for each citizen whether they stay in isolation facilities, but the Danish Patient Safety Authority can order isolation with reference to the Danish Epidemic Act (*Epidemiloven*), provided certain conditions are met and subject to a specific assessment.

STRATEGIC USE OF COVID-19 TESTING

The ambition of the Danish testing efforts is to support the other health initiatives which are being implemented to combat COVID-19, including quick testing of everybody who needs testing and quick results. Surplus testing capacity will still be made

available to all citizens, but special access to testing will be ensured for, among others, those with symptoms who need a medical assessment, the close contacts of those infected with COVID-19, as well as citizens in areas currently experiencing outbreaks of infection. In addition, testing is being targeted at a number of specific groups.

The special groups and testing initiatives include:

- Testing people with symptoms consistent with COVID-19 who need a medical assessment.
- Testing the close contacts of people who have tested positive for COVID-19.
- Testing patients who expect to be hospitalised for more than 24 hours, regardless of the cause of the hospitalisation, as well as patients who need to undergo certain special procedures, for example at specialist clinics.
- Testing in connection with outbreaks, including the testing of staff and residents in the health, social and senior sectors in the event of the suspected spread of infection, as well as the testing of persons in areas or at locations with extensive infection or outbreaks.
- Systematic testing of asymptomatic staff in nursing homes and in home care and of regional staff who are in contact with patients and residents.
- Offering testing on arrival in Denmark.

Flexible access to testing and quick test results

Geographically distributed permanent testing stations and mobile units ensure that testing can be performed throughout Denmark, and that it can be flexibly organised so that testing is targeted at places and situations where it is needed or where a need for testing suddenly arises. For chains of infection to be identified quickly, it is vital that tests are carried out close to citizens, in particular people who do not arrange to be tested themselves, and it is also essential that the testing is flexible and geographically mobile so that it can be relocated according to need and in response to infection outbreaks anywhere in Denmark. This flexible testing capacity can thus be targeted and deployed where it is considered most appropriate, although it may necessitate more selective access to testing in other parts of the country for a temporary period.

In addition, it is a key priority that citizens who need to be tested are tested quickly, and that they also receive the results quickly, so that it is possible to launch the required measures such as contact tracing and isolation. The objective is that 80% of those who have to be tested are able to be tested within 24 hours, and that 80% of those who are tested can obtain their test result the day after they were tested.

Managing local infection

Testing is deployed in a targeted and proactive way in connection with specific local outbreaks or other situations where special measures are deemed appropriate in order to reduce the level of infection to the greatest possible extent. Here, people who have been in close contact with an infected person are ensured easy access to testing so that measures can be implemented to quickly break the chain of infection.

When a citizen is diagnosed with COVID-19, close contacts are quickly traced, and everyone is asked to self-isolate. The Danish Patient Safety Authority or the infected person's own doctor contacts close contacts without any symptoms, and recommends that they be tested by TestCenter Danmark. Close contacts are regarded as a high-priority group at TestCenter Danmark, so they can quickly be tested and self-isolate if the test result is positive. Close contacts must be tested twice, and can book appointments to be tested via coronaprover.dk.

In the case of a serious spread of infection, more extensive testing takes place in order to detect the infection in general, to break the infection chains and, in particular, to protect the most vulnerable citizens.

Protecting persons at higher risk of infection

To further protect vulnerable citizens, and as part of monitoring the epidemic, regular testing of staff in care homes, home care and in regional social institutions as well as regional health workers in contact with patients and residents has been agreed with the regions and the municipalities according to the level of infection locally in the municipalities or where the risk of infection is deemed to be high.

In the case of low rates of infection, staff will be regularly tested according to the agreement between the parties. If the incidence of new infections in a municipality exceeds 20 cases per 100,000 inhabitants in one week, the testing frequency is initially increased to every two weeks after a concrete assessment by the Danish Patient Safety Authority. Regional staff in contact with vulnerable patients are tested every two weeks as a matter of course.

If infection is detected in an employee or resident at an institution or in a hospital ward, all the residents and all the hospital staff are tested for COVID-19 according to the guidelines issued by the Danish Health Authority.

EFFECTIVE USE OF TESTING CAPACITY

Our testing capacity is significant and continues to be developed. However, the development in the rate of infection is unknown, and this will have an impact on both the demand for and the use of testing. Moreover, seasonal developments, for example during the winter months, can lead to an increased number of enquiries from citizens with mild respiratory symptoms, and who are in need of testing. Experience shows that even ample testing capacity can suddenly come under pressure. If this happens, it may be necessary to adjust access according to how the testing can be used as expeditiously as possible to ensure that the infection rate is reduced as much as possible.

To make the most of the available testing capacity, a number of key groups have been given special access to testing. In the health track, people with symptoms in need of a medical assessment are tested as are residents and staff at care homes etc. in the event of infection outbreaks as well as patients, while – in addition to the generally

free access to TestCenter Danmark – special priority is given to close contacts of infected citizens. This special access to testing may be extended to other relevant groups by providing special referrals with priority access while limiting the number of “free access” testing appointments available. Special access may, for example, be based on risk analyses prepared on the basis of monitoring data. Other relevant groups may include the systematic testing of municipal staff in contact with vulnerable persons, or the geographically based testing of persons in areas with widespread infection. Also, agreements can be made with large workplaces to give selected groups of employees access to testing where there is deemed to be a particular risk.

SEROLOGICAL TESTING (ANTIBODY TESTING)

Serological testing, also called antibody testing, can detect the presence of antibodies to COVID-19 as an indication of previous infection. TestCenter Danmark uses antibody testing to sample the population as part of its ongoing efforts to monitor the epidemic as well as for epidemiological studies. In August 2020, 18,000 people were called in to participate in a representative study of antibodies in the population. The study is ongoing and is set to continue.

There is still a lack of knowledge about the extent and duration of the protective immunity provided by antibodies after falling ill with COVID-19. Therefore, antibody testing is currently only used in connection with epidemiological studies and in selected clinical situations to support other diagnostics in patients with symptoms. The research developments are being closely monitored, and Statens Serum Institut is constantly considering how testing for antibodies can be used to help understand and combat the spread of COVID-19 in Denmark, but it is expected that antibody testing will become increasingly significant for monitoring as the epidemic evolves..

TECHNOLOGICAL DEVELOPMENT OF NEW TESTING METHODS

The current testing set-up is based on so-called high-quality polymerase chain reaction (PCR) analyses that provide extremely accurate test results while also allowing the efficient and cost-effective analysis of large numbers of samples.

Statens Serum Institut is following the technological development of new testing methods, including rapid testing for the COVID-19 virus, and the Danish testing set-up is regularly being reviewed to determine whether it needs to be adjusted in light of any technological developments.

Private companies can offer COVID-19 testing, and in this way supplement the public testing capability as long as they meet the relevant rules for this type of enterprise.