Austrian Testing Strategy for SARS-CoV-2
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1 Introduction

This document illustrates the current strategy of the Austrian Federal Ministry of Social Affairs, Health, Care and Consumer Protection (BMSGPK) on testing for SARS-CoV-2. The document is primarily directed towards interested members of the public, the expert community and the media.

The current Austrian testing strategy focuses on three elements:

- **Tests prescribed by the authorities**, which above all cover the testing of persons with COVID-19 symptoms and contacts of confirmed SARS-CoV-2 cases.
- **Specific screening programmes**, which particularly cover the testing of vulnerable groups and those who care for them as well as occupational groups with an increased risk of infection.
- **Screening programmes directed towards the whole population with low-threshold access and constant availability**. These also include tests which are required to enter certain localities (so-called access tests). These tests are provided through public testing sites, companies and pharmacies amongst others. Kits for self-testing add to the different opportunities for low-threshold testing.

While tests prescribed by authorities have been part of the Austrian testing strategy since the start of the pandemic, the specific and population-based screening programmes have been integrated into the testing strategy on a step-by-step basis. Particularly rapid antigen tests being broadly available for some time now – which unlike PCR tests do not require complex and expensive laboratory analysis – it has been possible to considerably extend the latter two elements of the testing strategy. They now provide the largest testing capacity by far.

Due to the low-threshold and cost-free access to tests, everyone has the opportunity to make an essential contribution towards the containment of the pandemic with little time and effort. Information on the different testing alternatives is available on the following website:

https://www.oesterreich.gv.at/

The Austrian testing strategy is regularly examined and if necessary updated to take the latest findings and developments into account.
2 Background

The Austrian strategy for testing for SARS-CoV-2 essentially pursues three objectives: Teste – Trace – Isolate (TTI), the prevention of transmission, and the acquisition of information.

2.1 Test-Trace-Isolate (TTI)

Test, trace and isolate (TTI) are essential tools in combating the pandemic. In suspected cases, the faster the test result is available and the quicker the tracing of contacts and their isolation take place, the sooner chains of infection are interrupted.

2.2 The prevention of transmission

SARS-CoV-2 is transmitted by people with symptomatic infections as well as by people without symptoms. In order to contain the transmission of SARS-CoV-2 in the best possible way, it is therefore necessary to also regularly test as many asymptomatic people as possible. Thus, people who do not exhibit any symptoms but are nevertheless infected with SARS-CoV-2 and might be contagious, can be found. By isolating these people and their contacts early on, infection chains are interrupted quickly.

2.3 Acquiring information

Systematic processing and interpretation of test results provides a good overview of the development of the epidemiological situation in Austria over time. This overview is essential when setting suitable measures to contain the spread of the virus in Austria. In addition, the data forms the basis for prognoses to estimate the future development of the pandemic.

2.4 Non-targets

The testing strategy presented in this document only takes into account testing methods with which an infection with SARS-CoV-2 can be directly established. Indirect forms of proof of an infection, such as antibody tests, are not addressed. The testing strategy as described here also does not consider measures such as vaccinations, which can influence levels of infection and thus possibly also the testing strategy.

Quoting longer passages of text from specialist papers, regulations and decrees etc. is also avoided here. References are given when appropriate.
3 The testing strategy

The current Austrian testing strategy is essentially composed of three elements:

• Tests prescribed by the authorities
• Specific screening programmes
• Screening programmes directed towards the population as a whole

The diagram below provides a summary of the groups of people, the purposes for which the individual testing elements are intended, as well as what testing opportunities exist for the respective target groups and purposes.

3.1 Tests prescribed by the authorities

Tests prescribed by the authorities particularly cover the testing of a person with COVID-19 symptoms and contacts of confirmed SARS-CoV-2 cases. The currently valid case definition lays down the symptoms, which make a person a suspected case (see clinical criteria). This currently valid case definition can be viewed on the website of the Federal Ministry of Social Affairs, Health, Care and Consumer Protection in the section on Health/Contagious Diseases/Infectious Diseases A-Z:

Neuartiges Coronavirus (COVID-19)
3.1.1 Persons with COVID-19 symptoms (suspected cases)
It is part of the Austrian testing strategy that all suspected cases are tested for a SARS-CoV-2 infection as soon as possible. It is important that all suspected cases are tested promptly after exhibiting COVID-19 symptoms. There are currently various ways of doing so:

- The health hotline 1450: when a person calls this number, their symptoms are evaluated and a decision is made on whether a test should be arranged. Depending on the province and the current state of health of the suspected case, there are different ways in which the test is carried out: by a mobile team at home or at a testing site which has been specially established for such cases.
- Doctors in private practice: Doctors in private practice, particularly general practitioners, offer tests for people with COVID-19 symptoms. To reduce the risk of infection Precautions are taken in their practices. It is necessary for suspected cases to call the doctor in advance in order to arrange an appointment.

3.1.2 Contacts of confirmed SARS-CoV-2 cases
In order for possible cases of SARS-CoV-2 infections among contacts to be recognised early and for them to be isolated if required, the Austrian testing strategy prescribes that all contacts must be tested at least once. In individual cases, the relevant health authority informs the person about their test date and location. Who is considered a contact and the best timing for their test is stated in a document of the Federal Ministry of Social Affairs, Health, Care and Consumer Protection. The current version of this document can be viewed on the following website:

Behördliche Vorgangsweise bei SARS-CoV-2 Kontaktpersonen: Kontaktpersonennachverfolgung

3.2 Specific screening programmes
The Austrian testing strategy includes specific screening programmes, particularly for the following groups of persons:

- Vulnerable groups, such as the residents of residential and care homes
- The staff caring for vulnerable groups
- Occupational groups with a higher risk of infection and transmission, especially health care staff and occupations that provide services with close physical contact to others, or who have frequent personal contact to others.

There is a range of free testing options for the specific screening programmes throughout the country, which will be even further extended in the near future. Such tests can
currently be carried out at the respective local authorities’ and provinces’ testing sites, for example. These tests can also be carried out by hospitals, residential and care homes for their own staff and vulnerable persons.

3.2.1 Screening programmes directed towards the population as a whole
Screening programmes for the population as a whole are primarily intended to recognise and isolate asymptomatic SARS-CoV-2 cases early on, thus rapidly interrupting chains of infection. These programmes also include tests which are required in order to enter certain places (so-called access tests).

3.2.2 Free tests at testing sites, pharmacies and in companies
In order to provide the entire population with access to tests that are as low-threshold as possible, tests for people without COVID-19 symptoms are being offered at public testing sites as well as participating pharmacies. In addition, a subsidy programme has been created to encourage a wide range of testing in companies. These tests are carried out by health care personnel, and authorised test certificates are subsequently issued.

By making use of these offers every individual can make a valuable contribution towards containing the pandemic. Ideally, everyone should get tested once or twice a week, and always before seeing a vulnerable person.

3.2.3 Self-testing
As part of the Austrian testing strategy, self-testing will also play an increasingly important role in the future. These are tests which you carry out and evaluate yourself. Since the beginning of March 2021, tests of this kind have been made available free of charge by the federal government via pharmacies.

However, when using home tests nobody checks whether the test has been carried out correctly, or to whom the test results actually applies. Furthermore, there is no authorised body, which could issue a test certificate. For these reasons, a negative result obtained via self-testing cannot grant access to specific locations.

Due to the significantly lower sensitivity of rapid antigen home testing kits, a negative test result is less reliable than a PCR test. It is therefore even more important to strictly adhere to all protective measures, in spite of a negative test (social distancing, FFP2 mask, hand hygiene etc.).

In the case of a positive test result, the health authorities must be contacted immediately in accordance with paragraph 3b of the Epidemics Act 1950. This can be arranged either via the health hotline 1450 or by arranging a new test appointment yourself at an authorised testing site. This obligation is fulfilled if you proceed as if you were a
suspected case (see Chapter 3.1.1). In according with paragraph 3b of the Epidemics Act 1950, the person has to self-isolate at home until the result of the new test is available.

It should also be noted that a positive test result means that a contagious SARS-CoV-2 infection is most likely to be present. If one then doesn’t act according to the avoidance measures of spreading the disease, this can lead to prosecution in accordance with paragraph 178 and 179 of the Criminal Code (deliberately or negligently endangering others with a contagious disease).

Further information on self-testing is available on the website of the Federal Ministry of Social Affairs, Health, Care and Consumer Protection:

FAQ: Testungen und Quarantäne
4 Testing procedures and test conditions

This chapter deals with the testing methods used in the Austrian testing strategy as well as the framework conditions for tests, such as how the sample is taken.

4.1 Tests to directly detect SARS-CoV-2

In the Austrian testing strategy, only tests which enable the direct detection of a SARS-CoV-2 infection are currently used. These include PCR, LAMP and rapid antigen tests. Indirect methods of detecting the virus, such as antibody tests, are currently not part of the strategy. However, they are employed by various institutions within the framework of a range of studies.

4.1.1 PCR test

The polymerase chain reaction test (PCR) is the international ‘gold standard’ for directly detecting SARS-CoV-2. A positive PCR test means that the person has a SARS-CoV-2 infection.

PCR tests are carried out in laboratories with analytical devices which are characterised by a very high sample throughput. The sample (obtained with a swab or by gargling) is usually not taken in a laboratory, but at testing sites, in doctors’ practices or in the person’s home. The sample thus has to be transported to a laboratory and processed there, which is why the test result is usually available one or two days after the sample is taken.

4.1.2 LAMP test

The LAMP test (loop-mediated isothermal amplification) functions in a similar way to a PCR test. This test also detects SARS-CoV-2 directly, and has a similar sensitivity to a PCR test when the sample is prepared correctly. The devices used for analysis are also suited for mobile use, so the analysis can be carried out where the sample is taken. The decisive disadvantage of this method, however, is a significantly lower throughput of samples compared to PCR tests. This low sample throughput is the main reason why the LAMP test hardly matters in practice.
4.1.3 Antigen tests
Compared to PCR tests, antigen tests have the following advantages: their analysis does not require a special device, so it can be carried out at the place where the sample is taken and the result is available around 15 minutes later. An additional advantage is the lower cost. The most important disadvantage of antigen tests is their lower sensitivity compared to PCR tests, whereby the reliability of the results of antigen tests is highest when the sample is taken shortly after onset of symptoms.

For further information on antigen tests, see the document (in German) “Antigen-Tests im Rahmen der Österreichischen Teststrategie” in the section “Coronavirus Specialist Information/Austrian Test Strategy and Laboratories” of the website of the Austrian Federal Ministry of Social Affairs, Health, Care and Consumer Protection:

Antigen-Tests im Rahmen der Österreichischen Teststrategie SARS-CoV-2

4.2 Types of sampling
For every method of testing, suitable and correctly carried-out sampling is a prerequisite for a reliable test result. Studies show that different amounts of virus material are obtained with different types of sampling under otherwise identical conditions. The ‘gold standard’, with which the highest amount of virus material can usually be obtained at or before symptoms begin is a nasopharyngeal (nose and throat) swab. This type of sampling should therefore be preferred in practice. With an oropharyngeal (throat) swab, less virus material is obtained than with a nasopharyngeal (nose-throat) swab. Additional ways of obtaining virus material are to gargle with a liquid or to provide a sample of saliva, although these methods also usually yield less virus material than a nasopharyngeal swab.

However, if one considers the entire testing procedure (sampling and analysis put together), it is certainly possible that a higher sensitivity of the analytical process can provide a similar level of reliability in terms of the test results, even if less virus material is obtained during sampling. For example, a gargle test (comparatively little virus material obtained) in combination with a PCR (high sensitivity) can have a similar level of reliability as a nasopharyngeal swab (comparatively high amount of virus material obtained) combined with an antigen test (low sensitivity).

Within the framework of the Austrian testing strategy, samples are usually taken by medical personnel. In some cases, however, the person himself takes the sample. This is the case with gargle tests, saliva tests and swabs of the anterior wall of the nose.
When samples are taken by medical personnel, it is ensured that they are carried out correctly. Information is provided in the section “Coronavirus/Legal Issues” on the website of the Federal Ministry of Social Affairs, Health, Care and Consumer Protection about which tasks (obtaining samples and carrying out antigen tests, carrying out laboratory tests, drawing up a report of the findings and evaluating it) may be carried out by different health professionals.

4.3 Test certificates and authorised issuers

An official test certificate is one which has been issued by a so-called authorised issuer. Authorised issuers are regional authorities which operate testing sites, doctors in private practice, pharmacies, hospitals, sanatoriums and residential and nursing homes. There are also a range of other authorised issuers. A current overview of authorised issuers is available on the website of the Federal Ministry of Social Affairs, Health, Care and Consumer Protection in the section on Coronavirus/Legal Issues.
5 Virus sequencing and the monitoring of mutations

Due to the recent increase in the occurrence of SARS CoV-2 variants, which are more contagious than previous ones, an increasing amount of genome sequencing is being carried out in the case of conspicuous PCR results, as part of the Austrian testing strategy. This is also intended to create an overview of the temporal and geographical development of virus mutations. This overview should then help to recognise possible transmission paths and dynamics. In addition, it can act as a basis for suitable measures taken in order to contain the virus.