



Laboratory-based Surveillance of SARS-CoV-2

Timely testing of SARS-CoV-2 infections is essential for managing the pandemic. This ensures identification of people who are infected (“cases”), tracing of people who have come in contact with cases (“contact tracing”), as well as the assessment of previous infection(s) and possible immunity against SARS-CoV-2 at a later stage.

The regulations on mandatory reporting of infections in Germany (IfSG) were revised on 1 February 2020 to include laboratory-confirmed cases of SARS-CoV-2. These cases are reported to local public health authorities to support targeted prevention and control measures.

The Robert Koch Institute has established laboratory-based surveillance of SARS-CoV-2 by adapting an existing surveillance system, enabling the timely assessment of testing behaviours and the epidemiological situation in Germany. The existing Antimicrobial Resistance Surveillance (ARS) system provides the infrastructure for continuous submission of data on pathogens and susceptibility testing for the whole spectrum of clinically-relevant pathogens. Diagnostic test results are electronically submitted by laboratories to the Robert Koch Institute. The system covers laboratories across Germany that process samples from the hospitals, outpatient and primary care.

The electronic system can be quickly adapted to include daily submissions of viral test results. This includes detection by PCR as well as serological antibody testing. For laboratories that do not participate in ARS, a simplified protocol covering only SARS-CoV-2 diagnostics has been developed in order to allow for wider participation.

Participation in the laboratory-based surveillance of SARS-CoV-2 is voluntary and open to laboratories that perform these diagnostics. Data from this surveillance system therefore represent a sample, not the total number of tests performed in Germany.

Data completeness: All participating laboratories have retrospectively submitted data on all SARS-CoV-2 tests performed, regardless of when they enrolled in the surveillance system. Analyses are not affected by successive participation.

Representativeness: The sample of participating laboratories is slightly biased towards private laboratories in contrast to hospital laboratories, which could lead to an under-representation of tests from tertiary care hospitals.

Coverage and representativeness of data vary between the Federal States in Germany.

Weekly report explanations in English

Weekly report as of [date]

Data status as of [date]

Analyses based on PCR tests

Number of laboratories that have submitted data

Number of hospitals where samples were taken

Number of medical practices where samples were taken

Number of PCR tests

All analyses are based on tests with a result submitted up until date of data status.

Table 1: Number of PCR tests (cumulative) by result

Table 2: Number of PCR tests (cumulative) by type of organisation where the sample was taken and result

Organisationstyp - Type of organisation: Arztpraxis - Medical practice; Krankenhaus - Hospital; Ambulanz – Outpatient care, hospital based; Normalstation - General ward; Intensivstation - Intensive care unit; Sonstige - Miscellaneous; Andere - Others: This includes public health authorities' testing facilities, drive-in-testing, and samples transferred between laboratories

Table 3: Number of PCR tests (cumulative) by Federal State and result

Tests are assigned to the Federal State where they were taken

Figure 1: Number of PCR tests by calendar week of sampling and result

Figure 2: Proportion of positive PCR tests by calendar week of sampling

Figure 3: Proportion of positive PCR tests by Federal state and calendar week of sampling

The size of the dots reflects the number of people tested per calendar week. The representativeness of the data is limited in several Federal States; data for Saarland are not displayed because there were fewer than 200 samples during the reported period.

Figure 4: Delay of Testing - Number of days between date of sampling and date of testing (mean) by calendar week of sampling

The size of the dots reflects the number of people tested per calendar week.

Analyses based on people with PCR test

Number of people with PCR test

Total number of PCR tests differs from total number of people tested: The dataset includes a pseudonymised identifier for people and successive tests of the same person can be assigned to them if tests are processed in the same laboratory. This does not apply across laboratories.

Table 4: Number of people with PCR test (cumulative) by age group and result.

Information on age is missing for x people (in %).

Table 5: Number of people with PCR test (cumulative) by gender and result.

Information on gender is missing for x people (in %).

Figure 5: Number of people with PCR test by age group and calendar week of sampling

Figure 6: Proportion of people with positive PCR test by age group and calendar week of sampling

Figure 7: Number of people with PCR test per 100,000 inhabitants by age group and calendar week of sampling

Note: These are data from a sample

Figure 8: Proportion of people with positive PCR test per 100,000 inhabitants by age group and calendar week of sampling

Note: These are data from a sample