

# GELDIGHEIDSDUUR VAN EEN NEGATIEVE PCR-TEST VÓÓR DEELNAME AAN EEN EVENEMENT

RAG subgroep Testing – 25 mei 2021

Opmerking: De huidige aanbevelingen zijn onderhevig aan veranderingen afhankelijk van nieuwe wetenschappelijke gegevens en/of de evolutie van de epidemie.

## Aanbevelingen:

- Een negatief resultaat van een RT-PCR test, voor deelname aan een evenement, blijft 48 uur geldig.
- Deelnemers aan een evenement moeten daarom op zijn vroegst 48 uur voor het begin van het evenement worden getest met een RT-PCR, of op zijn vroegst 24 uur met een Ag test.
- Deelnemers aan een evenement dat zich over meerdere dagen uitstrekt, moeten dus herhaald getest worden.
- Bovendien moeten deelnemers die uit het buitenland komen, altijd voldoen aan de geldende maatregelen voor reizigers inzake testen en quarantaine.

## De volgende personen hebben deelgenomen aan dit advies:

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## CONTEXT

A negative COVID-19 RT-PCR test provides sufficient evidence that a person is not infectious and is therefore often required in certain circumstances, such as before travelling to a country. With the relaxations of measures, the number of circumstances, in which proof of non-infectiousness through a negative RT-PCR test is required, is increasing. In Belgium, the only circumstance for which a period of validity of a negative RT-PCR test was established, is for non-resident travelers coming to Belgium. These travelers are only allowed entry upon presentation of a recent negative RT-PCR test  $\leq 72$  hours before departure. In the RAG advice on testing travelers (March 2021)<sup>1</sup> it was discussed to reduce this period to 48 hours, following ECDC recommendation, but the 72 hours period was withheld with the argument that for travelers coming from some countries, as the US, it is difficult to get a test result on such short notice.

<sup>1</sup> See: [20210303 Advice RAG Testing of travelers\\_NL.pdf \(sciensano.be\)](#) or [20210303 Advice RAG Testing of travelers\\_FR.pdf \(sciensano.be\)](#)

No advice was ever formulated for the period of validity in other circumstances, such as before attending a mass gathering event. A RAG advice of April 2021<sup>2</sup> established a validity period for a negative Ag test result (24 hours) and states that for an RT-PCR the validity period of 48 hours is currently applied. However, in some circumstances a period of 72 hours is used. There was therefore a need to revise the evidence and advise on the best period to use in circumstances other than before international travel.

## DISCUSSION

- There is sufficient evidence from modelling studies that infectiousness increases rapidly 48 hours after exposure (one study estimating that 25% has become infectious after 2.3 days). A 72 hours period could thus lead to substantially more people becoming positive after the test and before the event than a 48 hours period.
- An additional risk is that individuals could increase their contacts after knowing that they are negative. A 72 hours period might therefore lead to a higher increase in contact rate after test result and prior to the event, potentially increasing the infection risk. However, this is just a conjecture and no scientific evidence is available on this.
- On the other hand, 72 hours has found to be acceptable in a context of travelling, because of logistical limitations, and is being used by certain governments in the US.
- A difference with travelers is that these go into quarantine, which provides an additional barrier to transmission.
- The current delay in getting a PCR result is about 24 hours, and a 48 hours period should therefore be feasible. For large events, with thousands participants, it might be challenging to test that many persons in a 48 hours period. However, testing with Ag tests at the earliest 24 hours before the start of the event is also approved and a combination of the two test approaches can be applied.
- Similar to the advice on the validity of a negative Ag result, the validity period is until the beginning of the event. For events of several days, a new test (PCR or Ag) needs to be done once the validity period has expired.
- Event participants coming from outside Belgium still have to adhere to the measures in place with regards to testing and quarantine for returning and incoming travelers.

## RECOMMENDATIONS

- A negative result of an RT-PCR test, prior to participating in an event, remains valid for 48 hours.
- Participants in an event should therefore be tested with an RT-PCR at the earliest 48 hours before the start of the event, or with an Ag test at the earliest 24 hours.

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<sup>2</sup> See: [20210419\\_Advice\\_RAG\\_validity\\_period\\_negative\\_Ag\\_test\\_FR.pdf \(sciensano.be\)](#) or [20210419\\_Advice\\_RAG\\_validity\\_period\\_negative\\_Ag\\_test\\_NL.pdf \(sciensano.be\)](#)

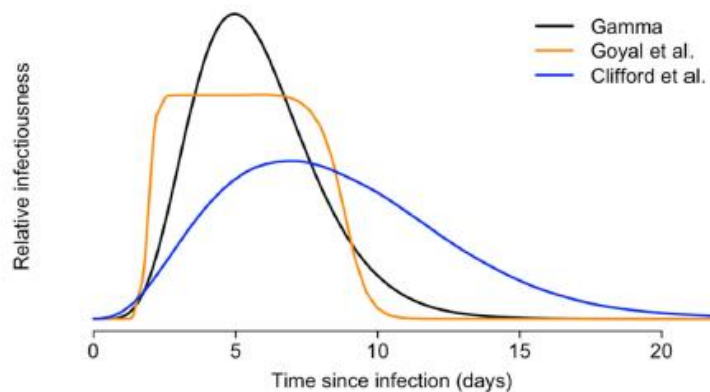
- Participants in an event that extends over several days should therefore be tested repeatedly.
- The sample to use is that currently recommended for non-repetitive screening in asymptomatic people: either a nasopharyngeal or a combined nose/throat swab.
- In addition, participants coming from abroad must always comply with the applicable measures for travelers regarding testing and quarantine.

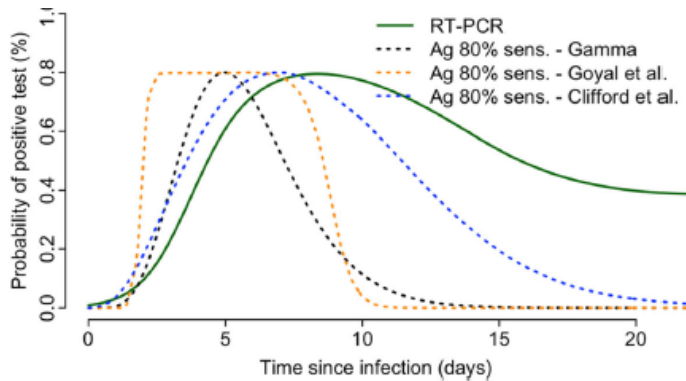
## SCIENTIFIC LITERATURE

Of interest for the topic are estimations of the serial interval (the time between 1 person developing symptoms and the person they infected developing symptoms) or the generation interval (the time between 1 person being infected and that person infecting someone else) of SARS-CoV-2. Multiple studies were conducted. The average serial interval is generally within the range of 3-5 days and the generation interval somewhat shorter (1,2). These estimates are based on previous variants and few data are available on new emerging variants. One study found no evidence that B.1.1.7 is associated with a change in serial intervals (3).

Other studies estimated the false-negative rate by day since infection. Kucirka et al. reviewed 7 studies and found that the probability of a false-negative result in an infected person decreases from 100% (95% CI, 100% to 100%) on day 1 to 67% (CI, 27% to 94%) on day 4 (4). Clifford et al. estimated, using the data of Kucirka et al., that the time from exposure to infectiousness has a median of 3.4 days with a lower IQ of 2.3 days (5).

A mathematical modelling study by Johansson et al. assessed approaches for reducing risk of transmission while travelling, using three distinct models of relative infectiousness and the probability of testing positive relative to time since SARS-CoV-2 infection (see figures below). It estimated that testing 3 days prior to travel resulted in a 10–29% reduction in transmission risk compared to a 44–72% reduction with testing on the day of travel (6).





## INTERNATIONAL GUIDELINES

### European Commission

The European Digital Green Certificate includes proof of a negative test result (either NAAT/RT PCR or rapid Ag test), but does not establish a validity period. The period of relevance of certificates depends on scientific evidence and will be determined by the verifiers following their national rules (7). In addition, this certificate is mainly intended to waive restrictions to free movement, such as testing or quarantine requirements related to travel, and not that much to allow access to mass gathering events.

### The Netherlands

The Dutch government defined that for the pilot events in the culture, sports and recreation sectors, visitors need to present a negative corona test receipt of less than 40 hours old. However, the test used is a rapid Ag test (8).

### France

The French government has introduced a 'sanitary pass' (pass sanitaire) which can also be used for access to events with more than 1,000 people. An advice by the scientific council COVID-19 recommends a negative test (RT-PCR or antigenic) performed within less than 48 hours, although that it is said that this is indicative and can evolve over time (9).

### The United Kingdom

In its pilot test events, the UK requires visitors to have proof of a negative rapid Ag test result from that day or the day before. No RT-PCR test is required (10).

### United States

In its advise on large gatherings of May 6, 2021, CDC does not provide any guidance on getting tested before attending a large gathering. It only reminds to remember that people without symptoms or with a recent negative test result can still spread COVID-19 to others (11).

Several states are reinitiating mass gathering events, each with its own guidance (12). New York state, for example, requires for indoor events above the gathering limit, that attendees over the age of four who are not presenting proof of full vaccination status must instead present proof of recent negative COVID-19 test result (i.e., PCR/NAAT within 72 hours or antigen within 6 hour prior to admission) (13). Also California applies a 72 hours period.

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