INDICATIES VOOR ZELFTESTEN THUIS

RAG subgroep Testing – 10 april 2021

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

Aanbevelingen:

- Duidelijker communiceren dat zichzelf testen thuis nooit ter vervanging van bestaande test indicaties kan zijn, meer bepaald:
  - Bij symptomen die op een COVID-19 infectie kunnen wijzen;
  - Indien gecontacteerd als een hoog-risico contact door het call center;
  - Bij aankomst of terugkeer uit een rode zone.
- Verduidelijken dat zelftesten niet nuttig is binnen 90 dagen na een eerdere positieve COVID-19-test.
- Benadrukken dat zichzelf testen thuis nooit kan worden gebruikt om bestaande voorzorgsmaatregelen te omzeilen.
- Communiceren dat zichzelf testen thuis nuttig kan zijn in de volgende twee situaties:
  - Uit hoffelijkheid, om besmetting van anderen te voorkomen, voordat men contact heeft met mensen buiten de huishoudbubbel /knuffelcontact en waarbij men vreest dat er zelfs met in acht name van de voorzorgsmaatregelen nog een risico op overdracht zou kunnen zijn (niet van toepassing op volledig gevaccineerde personen);
  - Om een mogelijke besmetting bij zichzelf vroegtijdig op te sporen:
    - Na een contact waarbij gevreesd wordt dat men besmet kan zijn geraakt. In dit geval moet de test 5 dagen na het contact worden gedaan, of in ieder geval in de periode 3-7 dagen na het contact en niet vroeger;
    - Indien gecontacteerd als een hoog-risico contact door het call center EN er meer dan 3 dagen zijn verstreken sinds het contact met het indexgeval (RT-PCR-test op dag 7 is echter nog steeds vereist);
    - Indien geïdentificeerd als een laag-risico contact door de CoronAlert app, en niet door het call center.
- De distributie van zelf-tests in apotheken handhaven, maar:
  - Duidelijker communiceren aan apothekers en het grote publiek wanneer zichzelf testen aangewezen is en wanneer niet (zie hierboven).
  - Benadrukken dat een positieve zelftest thuis steeds dient bevestigd te worden. Hiervoor kan een code aangevraagd worden bij een call center (nummer toevoegen van flyer) of via de huisarts.
- Geen nieuwe systemen voor routinegegevensverzameling invoeren, maar in plaats daarvan de huidige systemen versterken:
  - Systematische bevestiging van positieve zelftests;
  - Apotheken aanmoedigen om alle verkochte zelftests te melden, ook de niet-terugbetaalde tests;
  - Resultaten van zelftests buiten beschouwing laten bij de nationale berekening van de positiviteitsratio.

- Indien nodig, wordt informatie over het profiel van gebruikers van zelftests en de redenen voor het gebruik, best verzameld door middel van een ad-hoc enquête.

De volgende personen hebben deelgenomen aan dit advies:

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CONTEXT

Since April 6, 2021, SARS-CoV-2 self-tests are available to the general public at pharmacies. In the following 2 weeks, 230,000 tests were sold. Pharmacists have expressed concerns about the lack of clarity on when to use and when not to use these tests. The RAG testing was requested to provide guidance and examples of indications for at-home self-testing.

In addition, there are concerns about the lack of accurate data on the exact number of self-tests being performed. Only the results of the positive confirmatory RT-PCR tests are communicated to health data and it is therefore not possible to calculate the positivity rate. Also, there is anecdotal evidence that not all positive self-tests are confirmed with RT-PCR. Pharmacies report the number of tests sold, but it is not known if they were actually used. The RAG Testing was requested to provide an advice on what data are crucial to be reported.

Finally, there are concerns about possible negative consequences of using self-tests for inappropriate indications, and the RAG Testing was requested to advice what to do if it would become evident that self-tests are not appropriately used.

RAPID AG TESTS CURRENTLY APPROVED FOR SELF-TESTING

The federal agency for medicines and medical products (FAGG/AFMPS) has approved three rapid Ag tests which may be sold as a self-test (1):

- The' SARS-CoV-2 Rapid Antigen Test Nasal' of SD Biosensor (distributed by Roche);
- The 'BIOSYNEX COVID-19 Ag BSS self-test' of Biosynex Switzerland; and
- The 'COVID-19 Antigen Detection Kit' of New Gene (Hangzhou) Bioengineering (distributed by SUNGO Europe).

In addition, FAGG/AFMPS lists another rapid Ag test that received a CE-certificate for sales in pharmacies:

- The 'Rapid SARS-CoV-2 Antigen Test Card' of Xiamen Boson Biotech Co., Ltd. (distributed by Lotus NL.

All of these tests have been approved based on the sensitivity and specificity reported by the manufacturer (see table below). No information on the performance of the Xiamen Boson Biotech test is available on the FAGG/AFMPS website.

Test	Sensitivity	Specificity
SD Biosensor	83.3%	99.1%
Biosynex	97.2%	100%
New Gene	97.1%	99.2%

Independent evaluations were only identified for the SD Biosensor test. Numerous evaluations have been conducted of the standard SD Biosensor Ag test (Standard Q and Standard F) using health care provider-collected naso-pharyngeal specimens, of which several showed a sufficiently high sensitivity (>=95% when Ct value is low) and specificity (>99%).

Three studies evaluated the SD Biosensor Ag test on self-administered nasal samples.

In a study by Lindner et al., nasal swabs self-collected at a clinic under supervision of a health care provider detected 74.4% of the positive cases, and when collected by a health care provider, 79.5% (2). Sensitivity among samples with a viral load >7.0 $\log_{10}$/swab was 95.7% and 100%, respectively. Specificity was 99.2%.

Nicolai et al. found that the SD Biosensor Ag test on a self-administered mid-turbinate nasal swab had a sensitivity of 91.2%, and among samples with viral load >7.0 $\log_{10}$ 100% (3). Sensitivity of the test performed on a HCP-provider collected anterior nasal swab and on a HCP-provider collected mid-turbinate nasal swab was both 86.1%, and when viral load was >7.0 $\log_{10}$ 96.6%. Specificity was 98.4%.

Stohr et al. evaluated the Roche test in a context of self-testing on a mid-turbinate nasal swab at home and found an overall sensitivity of 61.5% and a specificity of 99.7% (4). Among samples with a Ct value below the cutoff for positive viral culture (i.e. that correlated with at least a 50% chance of recovering a viable virus) sensitivity was 80.1%. Using a composite reference standard for expected contagious COVID-19 infection (having a positive result in at least 2 out of 3 tests: Viral culture, RT-PCR, and rapid Antigen test) the sensitivity was 81.4%.

Table: Results of studies evaluating the SD-Biosensor/Roche test on self-collected (mid-turbinate) nasal specimens

Study	Sensitivity		Specificity
	Overall	High viral load	
Manufacturer	83.3%		99.1%
Lindner et al.	74.4%	95.7%	99.2%
Nicolai et al.	91.2%	100%	98.4%
Stohr et al.	61.5%	81.4%	99.7%

INTERNATIONAL GUIDANCE ON SELF-TESTS

SARS-CoV-2 rapid Ag tests for at-home self-testing have become available in several countries over the past weeks. However, none of the published guidelines in these countries provide a clear list of indications for self-testing. At best, examples are given. The table below summarizes the guidance given in some countries. On the other hand, almost all of these countries (with the exception of the US) clearly state that self-testing is complementary to the existing test indications and can never replace them.

Most examples given relate to a context of visiting relatives or friends. Some countries suggest to use them in a context of repetitive testing, for example before going to school or work. One country (Germany) suggests to use it before attending events.

Table: Self-testing indications by international agencies and in other countries

Country	Indications (according the national guidelines)
ECDC (5)	No specific indications suggested
The Netherlands (6)	'For example, if you go to school, or if you work in a position where working from home is not possible'
France (7,8)	'before family meetings for example' 'before a meeting with relatives...'
Germany (5)	'to provide reassurance to individuals prior to 'everyday situations', like before visiting someone or going to the theatre/cinema'
United Kingdom (9,10)	'to detect infection in people who do not have any COVID-19 symptoms and who may not otherwise have been tested' 'to help them stay safe and stop the spread of the virus'
United States (11)	'If you need to be tested for COVID-19 and can't get tested by a healthcare provider'
Austria (12)	'by asymptomatic persons for self-information, e.g. before family visits'
Canada (13)	Has approved self-testing kits, but not yet defined indications

DISCUSSION

Indications for self-testing

- Self-testing in Belgium is currently possible in two different situations:
    - Self-testing in a context of repetitive testing (twice a week) in the workplace. In this situation the self-test is at the cost of the employer, under supervision of a medical doctor and has a clear indication.
    - At-home self-testing based on a self-evaluation, without supervision of a medical doctor.

  The current advice only applies to the second situation.

- There is agreement that also in Belgium, at-home self-testing should never be used in replacement of existing test indications. However, this message appears not to have been understood by all stakeholders. An online survey by the pharmacist association revealed that about 20% of people purchased a test for when having symptoms and 15% for a risk contact.

- A possible exception to the above could be for people with minor symptoms for which they do not consult a general practitioner. However, this is a difficult message to correctly communicate and has a risk that symptomatic people might seek care even less.

- There is agreement that self-tests should not be used as a requirement for accessing activities and events.

- The current official communication to the general public (leaflet) does not give any examples of when to use a self-test. It only states that it should not be used when having symptoms or in the event of a positive PCR test in the previous 3 months.

- A flowchart is being proposed by the pharmacist association, in which self-tests are recommended for:
    - On the own initiative of an asymptomatic citizen
    - (Asymptomatic) employees of a company, under the supervision of the occupational health service, and employees in positions where it is not possible to tele-work
    - After a risk contact if this occurred more than 3 days before
- Examples given by policy makers in the media generally are in the sphere of family visits or unavoidable contact with vulnerable people ('for example, an elderly neighbor asks you to go with him to the doctor, and you want to be very sure that you are not infected').
- The cost of an at-home self-test limits its use for repetitive testing.
- Self-tests might be useful before an at-risk encounter (with one or more people outside the bubble), such as a grandparent meeting a grandchild, gatherings with 10 people outside, students returning home from their 'kot' bubble, departing travelers, among many others. It can never be a reason to neglect protective measures, but can be an additional security to avoid infecting others (out of courtesy). Instead of giving specific examples, it is better to leave it to each individual to make this assessment. Testing pre-attending an event or organized activity is not a good example. Self-testing before an encounter with multiple people in which the other people did not test risks to be little effective, but overall it might still be useful.
- The latest RAG advice on the impact of the vaccination strategy on the measures in place around testing and quarantine recommends not to preventively screen fully vaccinated persons. The above-mentioned indication for self-testing does therefore not apply to fully vaccinated people.
- Self-tests might also be useful after an at risk encounter. This has been shown in the current student testing program at the KU Leuven. Half of the detected cases are among students screened after an at-risk situation (based on a self-assessment), and not fulfilling the criteria for an existing test indication. Students test positive in the period 3-7 days after the at-risk situation, before onset of symptoms. A risk is that if tested too soon, before the test becomes positive, it might give a false sense of security. Nevertheless, it is useful if the test is done 3-7 days after the at-risk occasion.
- Self-tests might also be useful:
    - if contacted by the call center as a high-risk contact, but more than 72 hours have passed since the last encounter with the index case. The recommendation is then not to conduct the first PCR test and only test on day 7. A self-test could, however, could provide additional assurance. A PCR test on day 7 remains nevertheless mandatory.
    - If identified as a low-risk contact by the CoronAlert app. The risk classification by the app is less fine-grained (only keeps distance with duration and estimated distance, no evaluation of use of mouth masks, of whether or not the environment is closed...) then by the call center. The current recommendation to test low-risk contacts on day 5 (with a PCR test) does therefore not apply to those only identified by the CoronAlert app. Self-testing might be a useful alternative.

- The RAG advice on testing of individuals with prior COVID-19 infection recommends not to retest individuals within 90 days of an initial positive test. This also applies to self-tests.

Actions to take when there is evidence of large-scale misuse of self-tests

- There is evidence that self-tests are commonly used in situations for which they are not intended, such as when having symptoms, when returning from travel, cluster investigations,… and that they are not always confirmed.
- It is feared that this might have a substantial negative impact on (1) surveillance (because self-tests are underreported) and (2) interrupting transmission (because positive cases do not enter the isolation/ contact tracing system).
- However, this is not sufficient reason to halt the current distribution of self-tests at pharmacies. Instead, the current problems of inappropriate use of self-tests and non-confirmation of positive self-test results need to be addressed.

Data gathering

- Currently the following information is gathered:
  - Confirmatory PCR tests are reported to health data through the eForm by test centers and in the future also by general practitioners.
  - Pharmacies weekly report the number of sold self-tests. Only reimbursed self-tests are mandatory to be reported, although that reporting of non-reimbursed tests is recommended. However, an underestimation of the real number of tests sold is possible.
- There are few confirmatory PCR tests being reported, and anecdotal information from the field (schools and companies) reports that not all positive self-tests are being confirmed.
- Information that is currently not available include:
  - Number of self-tests actually used
  - Number of negative results (and thus the positivity rate)
  - Number of positive results for which no confirmatory PCR test was requested
  - Profile of users
  - Reasons for use
- While it would be useful to have the above listed missing information, it is not essential and routine collection of it risks to overburden pharmacies. The essential information to gather is the number of people who tested positive, confirmed by an RT-PCR. A system is in place (or will soon be) to collect this information. However, the data will only be useful if people have a confirmation test. This should therefore be stronger emphasized.
- The calculation of the national positivity rate, for surveillance purposes, remains possible by excluding the self-tests from this calculation. However, if a lot of self-tests are used for symptomatic people this might impact on the number of PCR and rapid Ag tests performed, and also impact the PR of the baseline surveillance (higher probability of positive test for more serious symptoms compared to very mild symptoms, that are less part of the data). This is another reason to emphasize that self-tests should not be used when having symptoms.

- Knowing the profile and reasons of people purchasing self-tests is not essential. If it would be needed, it could eventually be collected through ad-hoc surveys.

RECOMMENDATIONS

Indications for self-testing

- To clearly state that at-home self-tests can never be used for existing test indications, and more precisely:
    - When having symptoms that might indicate a COVID-19 infection;
    - When being identified by the call center as a high-risk contact (or as a low-risk contact in the event that also low-risk contacts are being tested);
    - When arriving or returning from a red zone.
- To clarify that self-testing is not recommended within 90 days of a previous positive COVID-19 test.
- To emphasize that at-home self-tests cannot be used to circumvent existing protective measures.
- Not to provide precise examples, but generally recommend to use a self-test in the following circumstances:
    - Out of courtesy, to prevent infecting others, before having contact with people outside the household bubble/ cuddle contact and in which it is feared that even with the protective measures in place there might still be a risk of transmission. This recommendation does not apply to fully vaccinated people in whom preventive screening is no longer useful.
    - To early detect a possible infection in oneself:
        - after a contact where one fears that one may have become infected. In this case, the test should be done 5 days after the contact, or at least in the period 3-7 days after the contact.
        - when contacted by the call center as a high-risk contact and more than 3 days passed since the contact with the index case (RT-PCR test on day 7 still mandatory though).
        - when identified by the CoronAlert app as a low-risk contact and not by the call center.

Actions to take when there is evidence of large-scale misuse of self-tests

- There is currently no reason to halt the distribution of self-tests to the general public at pharmacies.
- Clear guidance, using appropriate communication techniques, has to be provided to pharmacists and the general public when to use and when not to use self-tests, following the recommendations listed above.
- It has to be stressed that positive self-tests need to be confirmed with an RT-PCR test, by either making an appointment at a test center or with a general practitioner.

Data gathering

- There is currently no reason to introduce additional routine data collection systems, instead the current systems should be strengthened:
    - Systematic confirmation of positive self-tests;
    - Encourage pharmacies to report all sold self-tests, including the non-reimbursed tests;
    - Exclude self-test results from the national calculation of the overall positivity rate.
- If a need would be identified for more information on the profile of self-test users and reasons for use, this information should be gathered through an ad-hoc survey.

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