IMPACT DU VARIANT OMICRON SUR L'ISOLEMENT ET LA QUARANTAINE

RAG - 03/01/2022

CONTEXTE

Le RAG a émis plusieurs avis antérieurs concernant l'impact du variant Omicron en Belgique. L'une des recommandations était de revoir les règles de quarantaine pour les contacts à haut risque vaccinés, mais cette recommandation n'a pas été suivie politiquement. Il avait également été prévu de revoir la définition de la "vaccination complète" et l'impact du certificat de rétablissement lorsque davantage de données étaient disponibles.

Il est désormais demandé au RAG de rendre un avis en urgence. Il est noté que le délai particulièrement court et le non-respect des procédures standard peuvent compromettre la qualité de l'avis.

ATTENTION ! Les décisions officielles telles que prises le 04/01/2022 par la Conférence Interministérielle diffèrent des recommandations données ici.

Contenu

1. Recommandations

Général

- Il est rappelé qu'il est nécessaire de disposer de **règles claires et compréhensibles**, qui restent stables autant que possible et qui sont largement communiquées.
- La **définition du cas reste inchangée**. Il convient de rappeler qu'un test est recommandé même en cas de symptômes légers et que la distinction avec d'autres infections virales ne peut être faite sur la base des symptômes cliniques, d'autant plus en ce qui concerne le variant Omicron.
- En cas de foyer de cas difficile à contrôler, il doit être possible de déroger aux mesures ci-dessous si les services sanitaires régionaux le jugent nécessaire.
- Dans un contexte de données insuffisantes sur la sensibilité des tests antigéniques rapides (RAT) pour le variant Omicron (réalisés par le personnel de santé ou en autotest) avec des résultats très différents selon la marque du test, une validation de ces tests disponibles sur le marché en Belgique est nécessaire, avec publication d'une liste des tests les plus fiables. Cela pourrait être réalisé par le CNR et, mieux encore, avec une coordination européenne.

Durée de l'isolement :

- **Aucune distinction n'est faite pour la durée de l'isolement entre les personnes vaccinées et non vaccinées**, ou entre les personnes symptomatiques et asymptomatiques. En effet, les preuves d'une différence de contagiosité pour les infections post-vaccinales avec le variant Omicron sont actuellement insuffisantes. En plus, cette recommandation a l'avantage de la simplicité et est conforme aux autres recommandations internationales.
- Pour les patients en isolement à domicile (sans nécessité d'hospitalisation), la durée de l'isolement **peut être réduite à 7 jours** (en absence de fièvre pendant 3 jours + amélioration clinique des symptomes), avec minimum 3 jours supplémentaires de mesures de protection additionnelles, telles que la limitation du nombre de contacts au strict minimum, et le port permanent d'un masque (de préférence un masque FFP2, sans valve) à l'intérieur. Cela signifie que toutes les activités pour lesquelles il est impossible de porter un masque (comme manger ensemble avec d'autres personnes) ne sont pas autorisées ou doivent se faire à l'extérieur avec une distance suffisante. Pendant cette période de 7+3 jours, la personne n'aura pas accès à un « Covid Safe Ticket ».
- Dans les collectivités pour personnes vulnérables (comme les maisons de repos et de soins), la durée de l'isolement pour les résidents asymptomatiques ou en cas de plaintes légères est diminuée de 14 à 10 jours (en absence de fièvre pendant 3 jours + amélioration clinique des symptomes). Pour le personnel soignant de ces collectivités, la durée de l'isolement est également de 7 jours, avec ensuite minimum 3 jours le port obligatoire d'un masque FFP2 (sans valve) sur le lieu de travail.

- Pour les patients hospitalisés et les patients gravement immunodéprimés, les recommandations actuelles (voir annexe) restent inchangées.

Durée de la quarantaine :

- Pour les **contacts à haut risque entièrement vaccinés** (voir définition ci-dessous) et **les enfants de moins de 12 ans**, il est fait référence à la recommandation du RAG du 16 décembre.
    - Tant que la capacité de test est suffisante, la procédure actuelle reste inchangée (1 test PCR entre le 3ème et 6ème jour, de préférence le 5ème jour). Jusqu'à ce que le résultat négatif du test soit reçu, la personnes reste en quarantaine.
    - Si la capacité de dépistage est insuffisante pour effectuer un test le 5ème jour, la période de quarantaine reste de 5 jours, avec 5 jours supplémentaires de port strict du masque, de préférence un masque FFP2 (sans valve). Pour les professionnels de santé, il s'agit d'un masque FFP2 obligatoire.

Type de HRC	Capacité de test suffisante	Capacité de test insuffisante
Vacciné (si 18+ : dose booster ou <4mois) OU <12 ans	Test J5 (ou J3-J6) et Q jusqu'aux résultats	Q de 5 jours + 5 jours masque (de préférence FFP2)
Non vaccinés	Q jusqu'au résultat de test négatif au J7	Q de 10 jours

- Pour les **personnes entièrement vaccinés vivant sous le même toit** d'une personne infectée qui ne peut être isolée (par exemple parce qu'il s'agit d'un jeune enfant), la période de quarantaine est également de 5 jours, avec soit test jour 5 ou port de masque supplémentaire (voir plus haut). Toutefois, si la capacité de test est suffisante, il est recommandé de réaliser un test PCR supplémentaire à la fin de la période infectieuse du patient index (c'est-à-dire à partir du 10e jour après l'apparition des symptômes/test positif chez le cas index).
- Les **exceptions actuelles à la quarantaine** pour les contacts à haut risque entièrement vaccinés pour des fonctions essentielles restent applicables (voir les conditions et précautions ici), même si aucun test n'est effectué entre le troisième et le sixième jour. Cependant, des mesures supplémentaires s'appliquent alors : le masque buccal doit être un masque FFP2 (sans valve) et la personne doit faire une autotest quotidiennement pendant 5 jours. Si la continuité des soins ne peut être garantie, cette exception à la quarantaine peut également être appliquée après un contact à haut risque au sein du foyer.

- Pour les **contacts à haut risque non vaccinés âgés de 12 ans et plus**, les mesures actuelles restent en place : période de quarantaine de 10 jours, qui peut être raccourcie après un résultat négatif d'un test effectué dès le 7ème jour.
- Les enfants de <12 ans avec contact à risque au sein du ménage suivent les mêmes règles que les adultes entièrement vaccinés. Pour les contacts dans le contexte scolaire, en particulier pour les enfants de moins de 12 ans, d'autres mesures peuvent s'appliquer, qui doivent être précisées.

Définition du statut complètement vacciné / certificat de rétablissement

- Une personne de plus de 18 ans est considérée comme totalement vaccinée jusqu'à 4 mois après la dernière dose recommandée du calendrier de vaccination de base, ou après une dose de rappel. La durée de validité de ce dernier ne peut être déterminée à l'heure actuelle.
- Pour les enfants et les adolescents âgés de moins de 18 ans, aucun rappel n'est actuellement recommandé et la définition de "complètement vacciné" n'est donc pas modifiée.
- La période de protection après une infection complète est également réduite à 4 mois. En raison du taux plus élevé de réinfection par Omicron, les personnes possédant un certificat de rétablissement sont soumises aux mêmes mesures de quarantaine que les personnes vaccinées. En cas de symptômes légers, un test doit toujours être effectué.

2. Discussion

- Data on symptoms of Omicron infections are still limited, but seem to indicate that the presentation is compatible with a common cold for most patients. The current case definition of a possible COVID-19 case in Belgium is very broad and covers the mild symptoms of a cold. There is thus no need to revise the definition. However, it is even more so impossible for people to rely on symptoms to self-diagnose COVID-19. Also, in addition to Omicron, the Delta variant continues to circulate, along with possible increasing cases of flu. Therefore, further communication to the public is needed that even in case of very mild symptoms like a runny nose and fatigue, they should get tested.
- There is currently not enough information available on the proportion of asymptomatic carriage. However, one study in South Africa showed that Ct values are high in a- or presymptomatic infections with Omicron. Therefore, **testing HRC remains important to detect these asymptomatic infections**, if test capacity is sufficient. If testing is not possible, focus should be on index cases and more emphasis is needed on quarantine and other preventive measures like mask-wearing, to limit further spread.
- The review of duration of isolation and quarantine in other countries shows a very large variety, often with complex rules. The decision on duration for both is depending on what is accepted as residual risk of transmission.
- For previous variants, there was some evidence of faster clearance of the virus in vaccinated persons compared to unvaccinated, which could allow a shorter isolation period for the first

group. However, there is thus far no evidence that this is also the case for Omicron. Therefore, no distinction is made for the isolation period according to the vaccination status.
A potentially shorter incubation period and serial interval for Omicron compared to Delta would imply that barrier measures are more efficient but contact tracing is more difficult (because contacts are identified with a delay, depending on the capacity of the call centers). Therefore, it is important that index cases can identify and report themselves their HRC (through the existing tool). The use of RAT (either by a HCW or as a self-test) has the advantage of a quick result, which could be an important asset in this context (see RAG advice on use of self-tests). However, current evidence on the reliability of RAT (sensitivity and specificity) for Omicron is inconclusive, since results and reports are discordant. A further evaluation of these tests is needed.

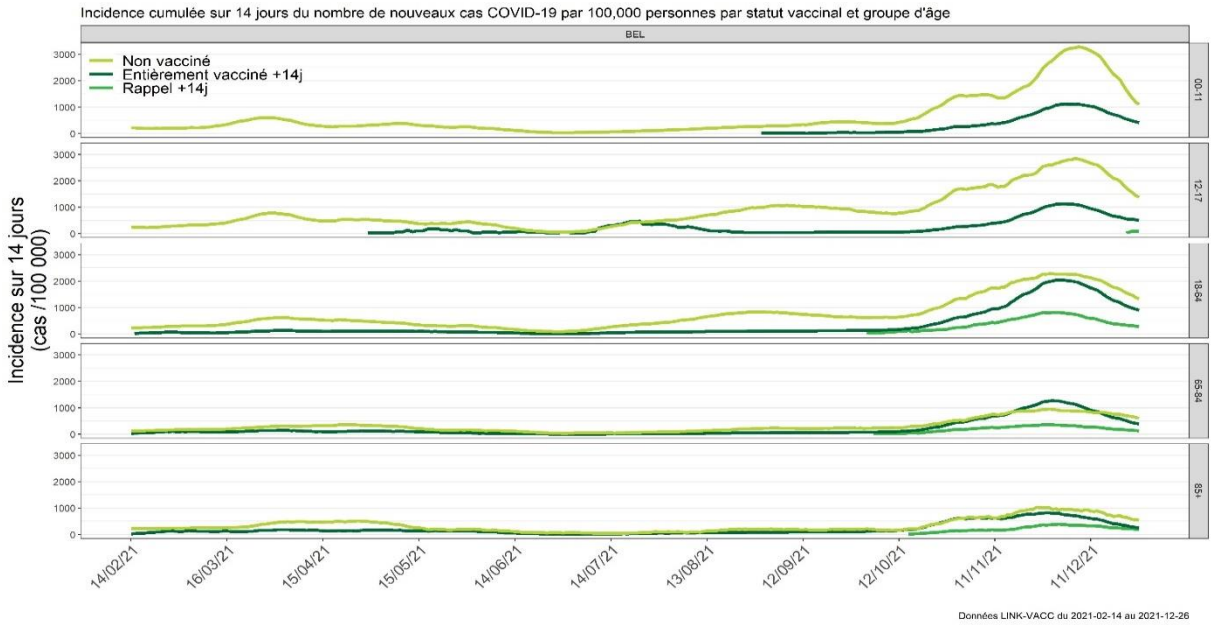
- The duration of the protective effect of vaccines against Omicron is currently unknown, and the rapid waning effectiveness of the second dose against Omicron infection as well as data from neutralization assays on the booster raise concerns about the longevity of the booster response.
- The VE against hospitalisation for Omicron remains still high after a booster (~80%) and there is more and more evidence of less severity, but there is currently still a high burden on the hospitals (with a high ICU occupancy) in Belgium and even a small percentage of a very large number of infections is still a threat to the health care. In addition, it is expected that Omicron will have a high burden on the primary care and the test & trace system.
- Because of the expected high number of infections and high-risk contacts during the Omicron wave, this might impact the continuity of service for essential functions, such as health care staff. The current exceptions for quarantine for essential functions remain valid.

3. Contexte épidémiologique

3.1. BELGIQUE

Comme prévu, la tendance des infections s'est inversée au cours de la dernière semaine de décembre, avec une **tendance à la hausse (rapide) des nouvelles infections**. Le dernier rapport quotidien de Sciensano (2 janvier 2022, données consolidées jusqu'au 30 décembre) montre une augmentation pour la plupart des provinces, plus prononcée pour la Région de Bruxelles-Capitale (+ 45 %) et les provinces du Brabant flamand (+ 35 %), du Brabant wallon (+ 25 %) et de Liège (+ 18 %). Toutefois, l'augmentation s'accélère. Le 28 décembre, il y a eu une augmentation nationale de 11 % par rapport à la semaine précédente, le 29 décembre, elle était déjà de 36 % et le 30/12 de 52 %. Ces données doivent être interprétées dans le contexte d'un nombre plus faible de tests (ce qui est généralement observé pendant les périodes de vacances et les jours fériés), ce qui sous-estime probablement le nombre d'infections. Depuis le 29/12, cependant, le nombre de tests effectués a de nouveau augmenté.

Les **données épidémiologiques en Belgique confirment les preuves scientifiques qu'une dose de rappel ne protège que partiellement contre l'infection**. Cependant, pour tous les groupes d'âge, l'incidence est la plus faible chez les personnes ayant reçu un booster et également plus faible chez les personnes vaccinées que chez les personnes non vaccinées (voir figure ci-dessous).



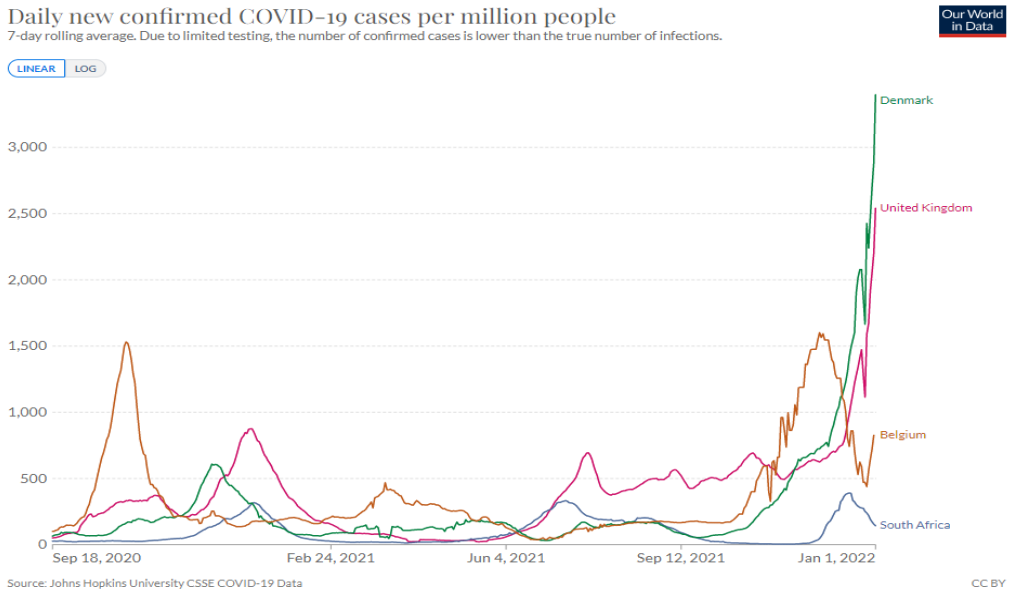
L'incidence la plus élevée est désormais enregistrée chez les 20 à 39 ans. Avec la reprise de l'école après les vacances de Noël, on s'attend à une forte augmentation pour les groupes d'âge plus jeunes. Et comme pour les vagues précédentes, l'incidence est susceptible d'augmenter dans les groupes d'âge plus élevés par la suite.

Depuis le 30 décembre, le nombre de nouvelles hospitalisations a également augmenté (légèrement). Le nombre total de lits occupés en général et dans les unités de soins intensifs continue de diminuer, mais dans une mesure très limitée. Aucune donnée n'est encore disponible sur la durée d'hospitalisation pour Omicron en Belgique.

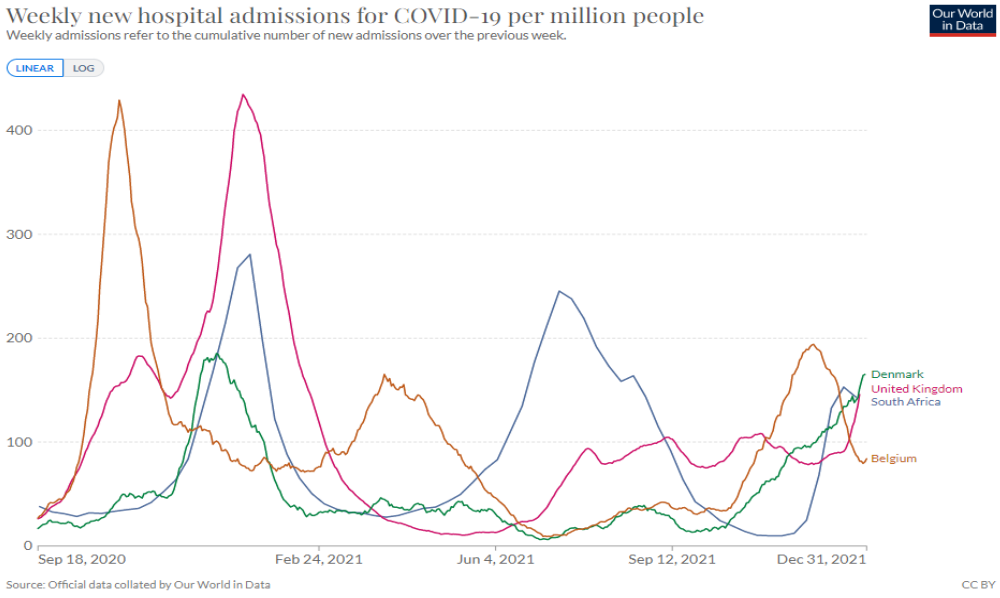
3.2. INTERNATIONAL

La figure ci-dessous compare le nombre de nouvelles infections en Belgique avec les pays où le variant a circulé plus rapidement, comme l'Afrique du Sud, le Royaume-Uni et le Danemark. En Afrique du Sud, un pic d'infections a été atteint mi-décembre et la tendance est à la baisse depuis. Le nombre d'infections rapporté doit être interprété dans un contexte différent de capacité de test comparé, entre autres, aux pays européens. Toutefois, ce pic est le plus élevé depuis le début de la pandémie. Au Royaume-Uni et au Danemark, le nombre de cas enregistrés est également beaucoup plus élevé que lors des vagues précédentes. Dans ces pays, il y avait moins de mesures générales qu'en Belgique au moment de l'introduction du variant. Toutefois, la tendance à la hausse en Belgique est actuellement aussi forte que dans les deux autres pays.

D'autres pays, comme la France, l'Espagne et le Portugal, font également état d'un nombre record de nouvelles infections, avec une très forte augmentation. Aux Pays-Bas également, une augmentation des nouvelles infections est à nouveau enregistrée, malgré des mesures drastiques ("lockdown") qui ont débuté le 19 décembre. Toutefois, cette augmentation est actuellement moins prononcée que dans d'autres pays.



Une comparaison des nouvelles hospitalisations entre différents pays montre qu'en Afrique du Sud, au Royaume-Uni et au Danemark, l'augmentation des infections a également été suivie d'une augmentation des hospitalisations, mais pour l'instant moins importante que pour les vagues précédentes (avec au Danemark une valeur déjà aussi élevée qu'au début de 2021). Il y a en effet de plus en plus de preuves que le risque d'hospitalisation est plus faible pour Omicron que pour Delta. Mais un petit pourcentage d'un très grand nombre d'infections peut encore entraîner une charge trop importante pour le système de soins de santé en Belgique.



4. Symptômes

4.1. SCIENTIFIC BACKGROUND

Information on symptoms of Omicron infections is still limited. Early evidence suggest however that for most people, Omicron appears to result in a mild disease, resembling a common cold (runny nose, fatigue, cough). Data released on 16 December by the Covid Symptoms Study,1 run by the health science company Zoe and King's College London, compared Delta and Omicron infections, based on London data (with higher prevalence of Omicron than in other parts of the UK) from a week where Delta was dominant (a sample of 363 cases from 3-10 October 2021) compared with the most recent data (847 cases from 3-10 December 2021). This **initial analysis found no clear differences between Delta and Omicron in the early symptoms** (three days after testing) (1). The top five symptoms reported in the app were runny nose, headache, fatigue (either mild or severe), sneezing, and sore throat. Cough was still identified as a common symptom in an outbreak of Omicron SARS-CoV-2 following a Christmas party with 117 attendees in Oslo, Norway late November 2021 (2). The most common symptoms among the 81 cases were cough (83%), followed by runny/stuffy nose (78%), fatigue/lethargy (74%), sore throat (72%), headache (68%) and fever (54%). When asked to grade the severity of symptoms on a scale from 1 (no symptoms) to 5 (significant symptoms), 42% (33/79) reported level 3 symptoms, whereas 11% (9/79) reported level 4 symptoms. Most participants were 30–50 years old. Ninety-six percent of them were fully vaccinated.
Loss of taste and smell seems to be less common but can still occur. An early description of 11 cases in the UK report that 5 of them (45.4%) had classic COVID-19 symptoms (loss or change of sense of taste or smell, fever, persistent cough), 2 (18.2%) were asymptomatic, and symptoms were unknown for 2 cases (3).

There is also emerging evidence that omicron tends not to burrow deep into the lungs as much as previous variants. A study, which was posted online by the University of Hong Kong and not yet peer-reviewed, found that Omicron SARS-CoV-2 infects and multiplies 70 times faster than the Delta variant and original SARS-CoV-2 in human bronchus, while Omicron infection in the lung is significantly lower than the original SARS-CoV-2, which may be an indicator of lower disease severity (4).

Data from South Africa (preprint article) from participants to a clinical trial for vaccine efficacy, with routine nasal swabs collected at the initial vaccination visit indicate that among 71 Omicron infected persons (presenting no symptoms at the time of the sampling), **48% had cycle threshold (Ct) values <25 and 18% less than 20**, indicative of high titers of asymptomatic (or possibly presymptomatic) shedding (5).

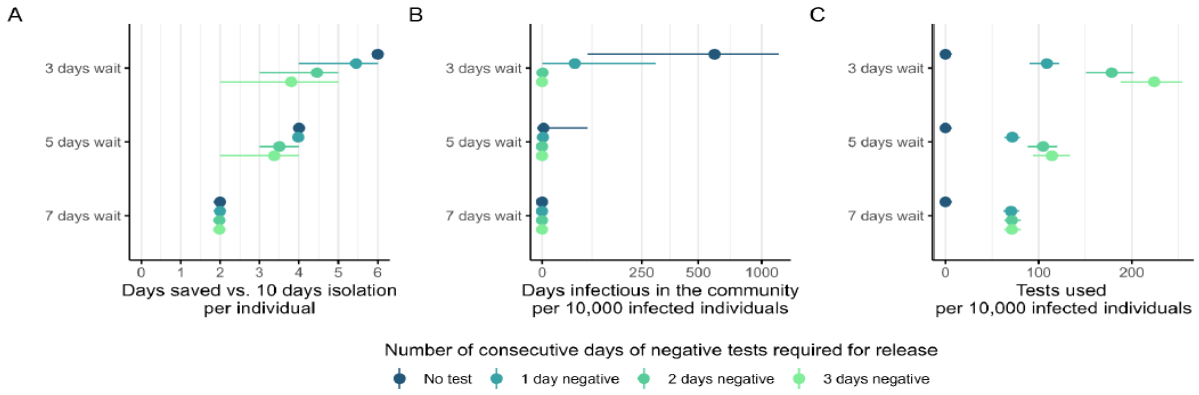
5. Durée de l'isolement

5.1. SCIENTIFIC BACKGROUND

Viral loads and viral dynamics do not only depend on the variant of concern but can also be influenced by characteristics of the infected person (age, sex, vaccination status) and are dynamic over the course of infection. It is therefore not easy to compare different findings.

Kissler et al. previously described viral dynamics in a longitudinally followed cohort of healthy young male athletes (6). Comparing 36 participants infected with the alpha variant, 36 with the delta variant and 41 participants with "wild-type" infection did not yield any differences in mean peak viral load or clearance of infection by virus variant. **In contrast, comparing infections between vaccinated and unvaccinated individuals also showed similar peak viral loads, but a faster clearance of infection in vaccinated individuals** (mean clearance 5.5 days for vaccinated, compared to 7.5 days for unvaccinated). That vaccination status, and not previously circulating VOCs, influenced the speed of clearance of infection was confirmed in another large high-quality study of Singanayagam et al. (7). However, as pre-existing immunity seems to influence Omicron infections less, it is unclear whether this advantage for vaccinated individuals would remain.

To account for inter-individual differences and safely end isolation early for some, whilst maintaining isolation for highly-infectious individuals, Quilty et al. modelled the effect of repeated self-testing (8). According to their analysis, the **number of infectious days in the community can be reduced to almost zero by requiring at least 2 consecutive days of negative tests**.



Since, as described above, faster clearance is expected in vaccinated individuals, test-to-release policies save fewer days in unvaccinated individuals and would require a larger number of tests. Regarding Omicron, if the shorter incubation/proliferation time would be confirmed, this would increase the number of days saved and reduce the number of tests needed. An important caveat is that the **modelling assumes a sensitivity of the self-tests of 89% and a specificity of 99%, which seems high compared to previously described results** (see annex for an overview). Moreover, it is as of yet unclear to which extent the sensitivity of rapid antigen tests is maintained for Omicron. Preliminary results from evaluations in the UK and the Netherlands are reassuring, but the US FDA issued a warning regarding possible reduced sensitivity, based on their

preliminary evaluation results, and one in-vitro study in Switzerland found a lower sensitivity in detecting Omicron compared to previous variants by some tests.

Data from contact tracing in Denmark (2,225 index cases) indicate that the median Ct values of primary cases infected with Omicron and Delta did not differ substantially (27.24 and 28.29, respectively) (9). Adjustment for Ct values of the primary cases did not materially alter the findings regarding secondary attack rates, suggesting that the difference between the Omicron and Delta VOC transmission is not due to differences in viral load in the primary case.

5.1. INTERNATIONAL GUIDELINES

AUTHOR	MILD/MODERATE	SEVERE DISEASE	IMMUNOCOMPROMISED	COMMENTS
WHO	Min. 10d after symptom onset + extra 3d no symptoms	Consider test-based (including VL/nAb) if prolonged symptoms	NA	**Min. 13d** for symptomatic cases Min. 10d for asymptomatic cases
ECDC	Clinical improvement + no fever for 3d + **10d** after symptom onset OR 2x neg PCR	Clinical improvement + no fever for 3d + **min. 14-20d** after symptom onset OR 2x neg. PCR	Clinical improvement + no fever for 3d + **20d** after symptom onset OR 2x neg PCR	**Residents/staff of LTCF or other vulnerable population** (prison, migrant hosting facility): like immunocompromised
CDC	no fever for 24h **+ 5d** after symptom onset	Consider 20d	Consider test-based	Followed by 5 days of mask-wearing when around others
RKI (DE)	48h no symptoms + **14d** after symptom onset + negative antigen test	(defined as requiring O_2) As mild cases + negative PCR	Case-by-case	No symptoms = "significant clinical improvement" High CT-values can be considered "negative PCR" LTCF: like severe
RIVM (NL)	24h no symptoms + **7d** after symptom onset (+ 48h no fever for HCW only)	Only if still hospitalized: 14d after symptom onset + 48h clinical improvement If still mechanically ventilated: 21d after SO + 48h clinical recovery + 2x neg PCR on LRT specimen	24h no symptoms + **14d** after symptom onset + consider 2x neg PCR	In LTCF: 24h no symptoms + 48h no fever + **14d**
SPF (FR)	**Vaccinated or <12y: 7d** after symptom onset, **5d** if neg test/ **Unvaccinated**: **10**d after symptom onset, **7**d if neg test +48h no clinical signs infection	?	48h no fever/dyspnea + 10d after symptom onset	from date of test for asymptomatic For those 65y+ "vaccinated" means dose 2 mRNA + max. 4 months or boosted
UKHSA (UK)	**10d** after symptom onset + no fever OR **min. 7d** after symptom onset + 2 consecutive negative tests	48h no fever + clinical improvement + **14d** after symptom onset	As severe + consider testing	

6. Durée de la quarantaine

6.1. SCIENTIFIC BACKGROUND

Omicron has a **distinct transmission advantage compared to Delta**.

Data from the UK (10) show that **secondary cases within the household are much more frequent after an index case that is infected with the Omicron variant compared to Delta** variant: 18% of households reported at least one secondary case with Omicron vs. 10% with Delta. In multivariable regression, this leads to an adjusted odds ratio of 2,9 for Omicron (95% CI 2,4 – 3,5 ; p<0.001).

Data from contact tracing in Denmark (2,225 index cases) confirm the higher secondary attack rate for Omicron compared to Delta (9). Preliminary Belgian data from contact tracing (~1000 index cases) also show a very high SAR for Omicron cases of 54%, as compared to 32% for non-Omicron cases.

- However, comparing Omicron index cases with Delta index cases, **SARs were not significantly higher for unvaccinated individuals** (aOR 1.17 [0.99-1.38]) but markedly higher for double-vaccinated persons (OR 2.61 [2.34-2.90]) AND for booster-vaccinated individuals (OR 3.66 [2.65-5.05]).
- With an Omicron index case, there was no difference in secondary attack rate between double-vaccinated contacts and unvaccinated contacts (OR 1.04 [0.87-1.24]).
- This is in line with reduced vaccine effectiveness against Omicron and leads to questioning of the current quarantine rules.

6.1.1. Vaccine effectiveness against infection

Quarantine is imposed to prevent the transmission of the virus. Therefore, it is mostly **vaccine effectiveness against infection** that will determine how strict quarantine rules for fully vaccinated high-risk contacts should be.

- Several studies have shown that **vaccines have reduced effectiveness** against the Omicron variant. The reduction in effectiveness is less marked after a booster dose or after infection plus previous vaccination (so-called hybrid immunity) (11).
- Analysis of 5,767 Omicron cases in Denmark showed vaccine effectiveness against infection with Omicron to be around 55% [23.5-73.7] during the first month after full vaccination (i.e. 2-6w after 2nd dose of mRNA vaccines), but rapidly decreasing with time. The waning is more pronounced than for infections with Delta (12).

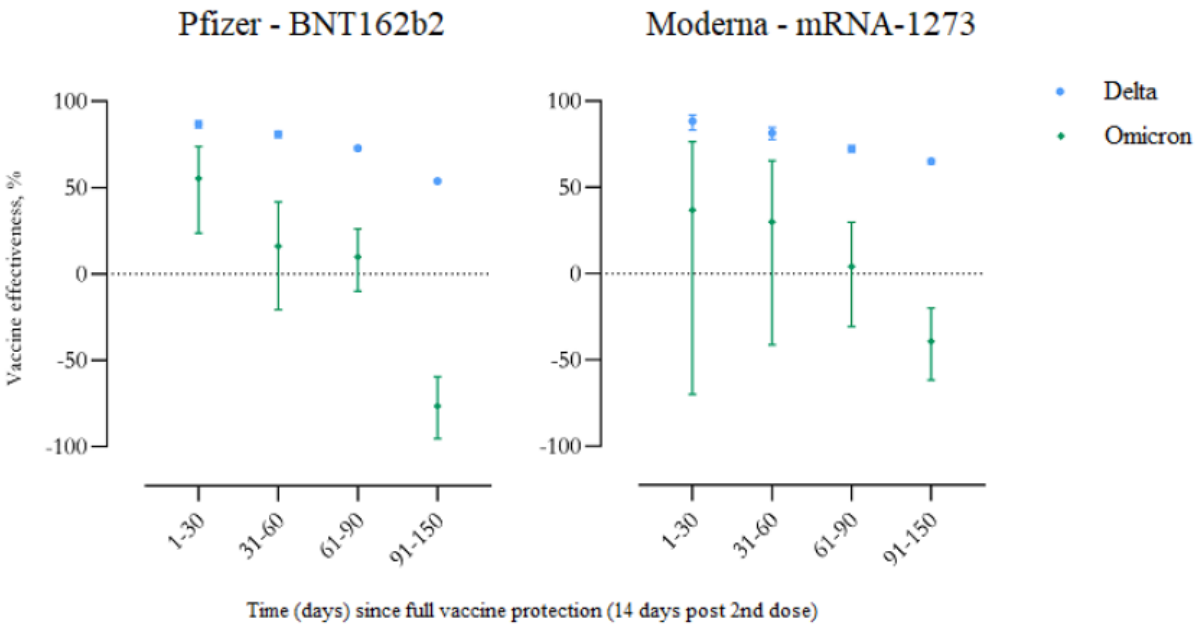
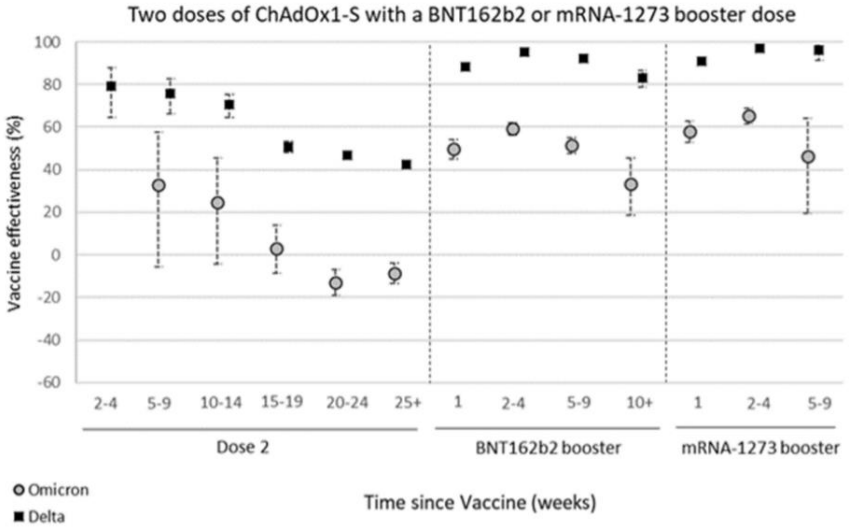
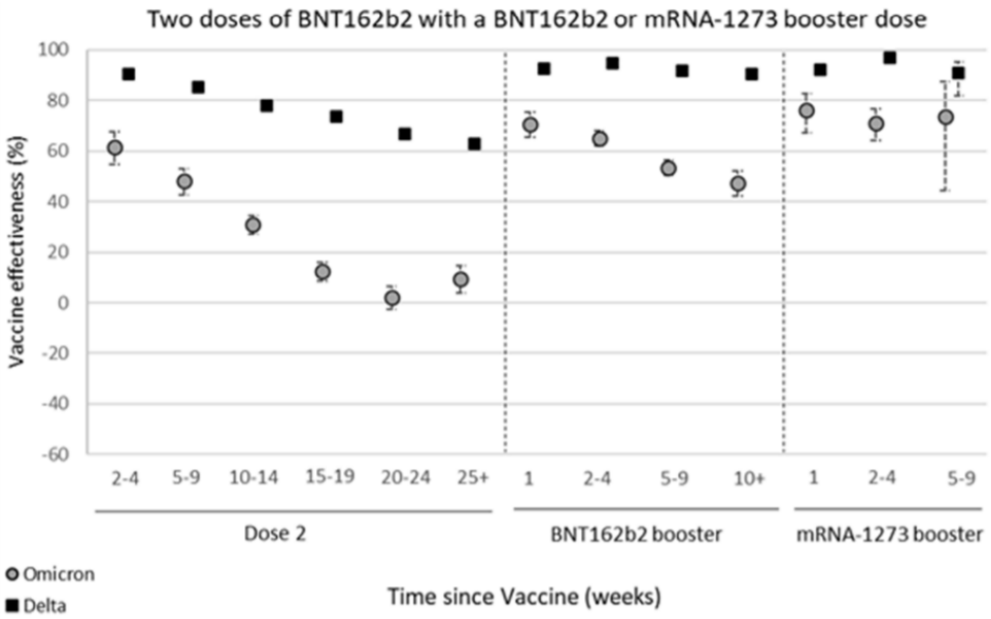


Figure Vaccine effectiveness against SARS-CoV-2 infection with the Delta and Omicron variants, shown separately for the BNT162b2 and mRNA-1273 vaccines. Vertical bars indicate 95% confidence intervals.

- The best vaccine-effectiveness estimates **against symptomatic diseases** to date come from the UK where 147,597 Delta and 68,489 Omicron cases have been analyzed (13). In all periods, effectiveness was lower for Omicron compared to Delta.
    - Among those who received an AstraZeneca primary course, **vaccine effectiveness was around 60% 2 to 4 weeks after either a Pfizer or Moderna booster, then dropped to 35-45% with a by 10 weeks after the booster**.



- Among those who received a Pfizer primary course, **vaccine effectiveness was around 70% after a Pfizer booster, dropping to 45% after 10+ weeks**.



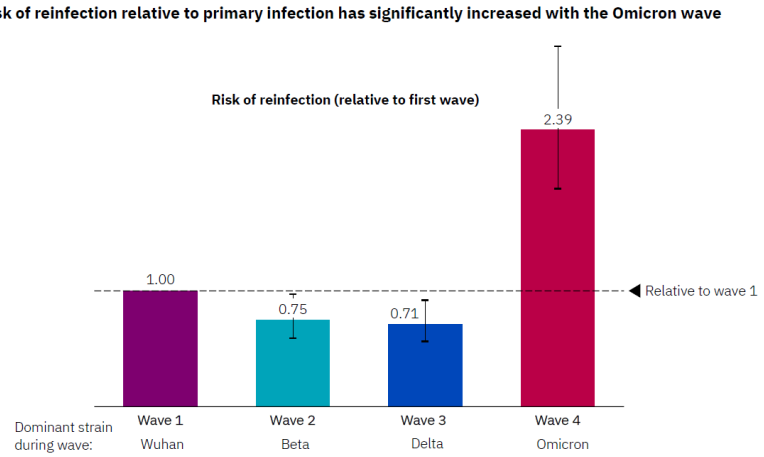
- Both Danish and UK results indicate that initial protection against Omicron after either 2nd dose of mRNA-vaccine or booster is similar, but protection wanes more quickly after 2nd dose. In Israel, researchers compared protection after the 2nd dose (primary vaccination offered to 12-15yo in June) with protection after a booster dose (for adolescents 16-18yo). The analysis shows that a fresh booster dose provides a 3.7 (95% CI: 2.7-5.2) fold increase in protection against confirmed infection compared to a fresh 2-dose vaccine. Of note is that both groups might have other differences (susceptibility, risk behaviour, testing behaviour etc) that could influence the results. However, the results are in line with in-vitro studies that show higher titers of neutralizing antibodies after the booster dose than after the initial vaccination schedule.

In the broader picture, a **maintained vaccine effectiveness against severe disease would mean that higher levels of viral circulation can be tolerated** and hence less strict quarantine rules are needed, especially in combination with a lower disease severity caused by Omicron. The most recent Technical Report from the UK provides the following info (14):

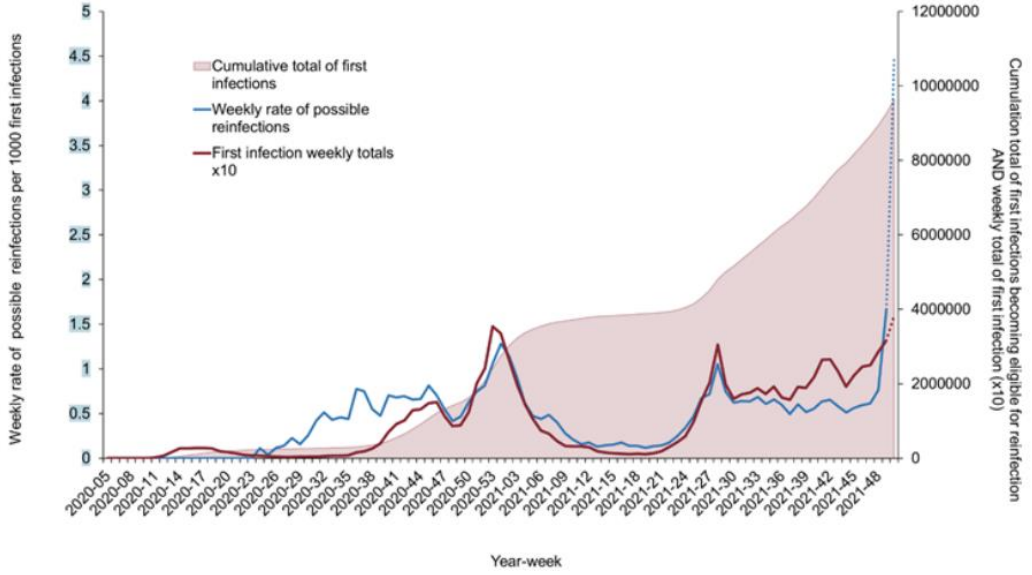
- One study analysed a large number of Omicron cases (approximately 500,000). **The risk of presentation to emergency care or hospital admission with Omicron was approximately half of that for Delta** (HR 0.53; 95%CI 0.50-0.57) and the risk of hospital admission from emergency departments was about one-third (HR 0.33; 95%CI 0.30-0.37), after adjusting for age, vaccination status and re-infections, among others.
- **VE against hospitalisation after a booster was 81% (77-85%).** A second smaller study calculated the VE against hospitalisation after a booster in subjects with symptoms to be 68% (42-82%) and for all Omicron infections to be 88% (79-93%).

6.1.2. Reinfections

- There is sufficient evidence of a reduced immunity by a previous SARS-CoV-2 infection against Omicron, compared to Delta, from both in-vitro neutralization studies and epidemiological evaluations.
- A study form the UK found that the **neutralizing response in unvaccinated individuals previously infected with Delta was 29 times less potent against Omicron than against Delta** (15). In fully-vaccinated individuals the reduction was, however, less outspoken (4.5 times).
- Epidemiological data from South Africa showed a relatively much higher level of reinfections during the current Omicron wave than during previous waves (16). However, this should be nuanced as the number of people that have had a diagnosis of COVID-19 somewhere in the past is also continuously increasing, thereby increasing the population that can present a possible reinfection.



- Data from England therefore use the population of previous infections eligible to become a reinfection as a denominator, and also show a marked increase in overall reinfection rates (17). Between 1 November and 18 December 2021 9.5% of all infections were reinfections.



- In the Netherlands, a multivariate analysis found an increased risk of SGTF, predictive of the Omicron variant, in previously infected individuals compared with infected naïve individuals (OR=4.9; 95%CI 3.1-7.7) (18).

6.1.3. Incubation period

Several studies suggest a possible shorter incubation period for Omicron as compared to previous VOCs, although data remains limited and mostly for young, healthy, vaccinated adults.

- Publicly available data from 18 transmission pairs in South Korea estimated a mean serial interval of **2.2 days** with standard deviation of 1.6 days (19) This is shorter than reported for Delta (mean 3.3 days).
- In a household outbreak in Nebraska, US, median interval between earliest possible exposure and symptom onset of 6 household members was **73 hours** (range 33-75 hours) (20).
- An outbreak after a Christmas party in Norway, involving 87 cases, the incubation period for symptomatic cases ranged from 0-8 days with a **median of 3 days** (IQR 3-4). Of note is that some transmission between colleagues might have happened before the party, which would lead to underestimation of the incubation period (2).
- Currently available Belgian data from contact tracing on 851 transmission pairs, show a median serial interval of **2.2 days** (SD 2,19), as compared to 2.9 days (SD 2,85) for non-Omicron cases.

6.2. INTERNATIONAL GUIDELINES

Of note when interpreting international guidelines, is that the definition of “high-risk contact” in many countries is more strict than in Belgium. For example, neither in the UK nor the US, mask-wearing during the exposure is taken into account. In the UK, any contact within 1m is considered as “high-risk”, regardless of the duration.

Several countries updated their guidance with regards to testing and quarantine of high-risk contacts, in response to the Omicron wave. Measures vary substantially among countries. Several countries (e.g. US, France, UK, Germany) require no quarantine for fully-vaccinated HRCs and sometimes replaced it with stricter precautionary measures. Some (US, Denmark, Italy) differentiate between HRCs already vaccinated with a booster and others. Most countries still require quarantine for non-fully vaccinated HRCs, varying from 5 to 10 days. Testing procedures are very diverse both in timing and tests used.

Agency/ country	Vaccination status	Testing schedule	Type of test	Quarantine	Adapted because Omicron wave
ECDC	Vaccinated	First test ASAP Consider a second test 2-4 days afterwards, particularly if a RADT was used	PCR preferred, but RADT is also acceptable	Until result first test is received If working with vulnerable people = unvaccinated HRCs	No
	Unvaccinated	First test ASAP Second test on day 10	PCR or RADT; PCR for second test	Until result second test is received	
CDC - general	Boosted or <6m after mRNA D2 or <2m after J&J	One test at day 5	NAAT or antigen	No, but mask-wearing around others for 10d	Yes
	Not boosted or recently vaccinated			5 days + mask wearing around others for 5d	
CDC- HCWs	Boosted or <6m after 2nd mRNA or <2m after J&J	D2 and D5-7	NAAT or antigen	/	
	Not recently vaccinated	Only if required for return to work		10d without test D7 if test D5 negative	
Netherlands	All HRCs (irrespective of vaccination status)	Self-test ASAP One test 5 days after last exposure	PCR, LAMP or Ag test Positive self-tests have to been confirmed PCR	10 days, unless negative test at day 5	Yes
	HCW HRCs (regardless of vaccination status)	First test ASAP Second test on day 5		Until negative test on day 5 Surgical mask type II for 10 days	
France	Vaccinated Contacts or children <12y	First test ASAP Self-test at day 2 and 4 after start symptoms in index	First test: PCR or rapid Ag test	No quarantine, but stricter measures during 7 days (mask wearing, limit contacts, teleworking…)	Yes
	Unvaccinated contacts	First test ASAP Second test at day 7		7 days from last exposure	
UK	Vaccinated or <18.5 years	Daily test for 7d (max. until D10) • Household HRCs: after start symptoms in index • Other contacts: after last exposure	Self-test	No quarantine	Yes
	Unvaccinated and 18.5+	One test ASAP	PCR	10 days	
Germany	Vaccinated	One test ASAP	PCR	No quarantine	No
	Unvaccinated	One test on day 5 if PCR, on day 7 if rapid Ag test	PCR or rapid Ag test	10 days, or until negative test result	
Denmark	Household contacts vaccinated with booster	First test ASAP Second test on day 4 Third test on day 6 If no isolation from index possible: 1st test ASAP and 2nd	Day 4: PCR Day 6: PCR or Ag test No isolation	No quarantine, unless isolation from index is not possible (quarantine until result second test)	Yes

Agency/ country	Vaccination status	Testing schedule	Type of test	Quarantine	Adapted because Omicron wave
	Household contacts without booster vaccination	test 48h after index has no symptoms or on day 7 if no symptoms First test on day 4 Second test on day 6 If no isolation from index possible: 1st test ASAP and 2nd test 48h after index has no symptoms or on day 7 if no symptoms	possible: First test: Ag test Second test: PCR	Quarantine until test result on Day 4; or until second test if no isolation possible	
	Other contacts (regardless vaccination status)	First test ASAP Second test on day 4	Ag test (possibly self-test)	No quarantine	
Italy	Boosted or primary vaccination <120d	No testing	-	No quarantine, but wear FFP2 mask for 10 days	Yes
	Primary vaccination >120d	Test on day 5	PCR or Ag test	Until negative test on day 5	
	Unvaccinated	Test on day 10	PCR or Ag test	Until negative test on day 10	

Les personnes suivantes ont participé à cet avis :

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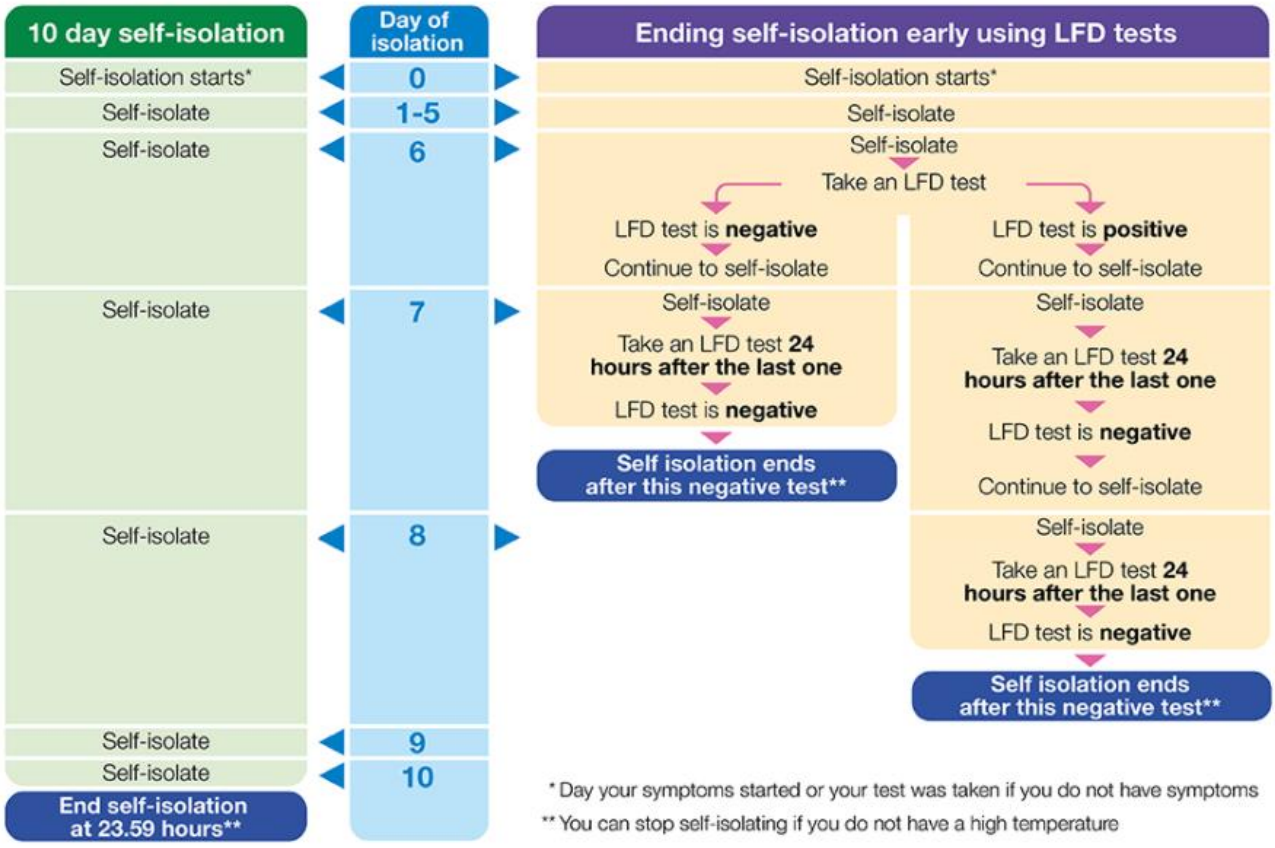
8. Annexes

8.1. DIRECTIVES SUR L'ISOLATION EN BELGIQUE

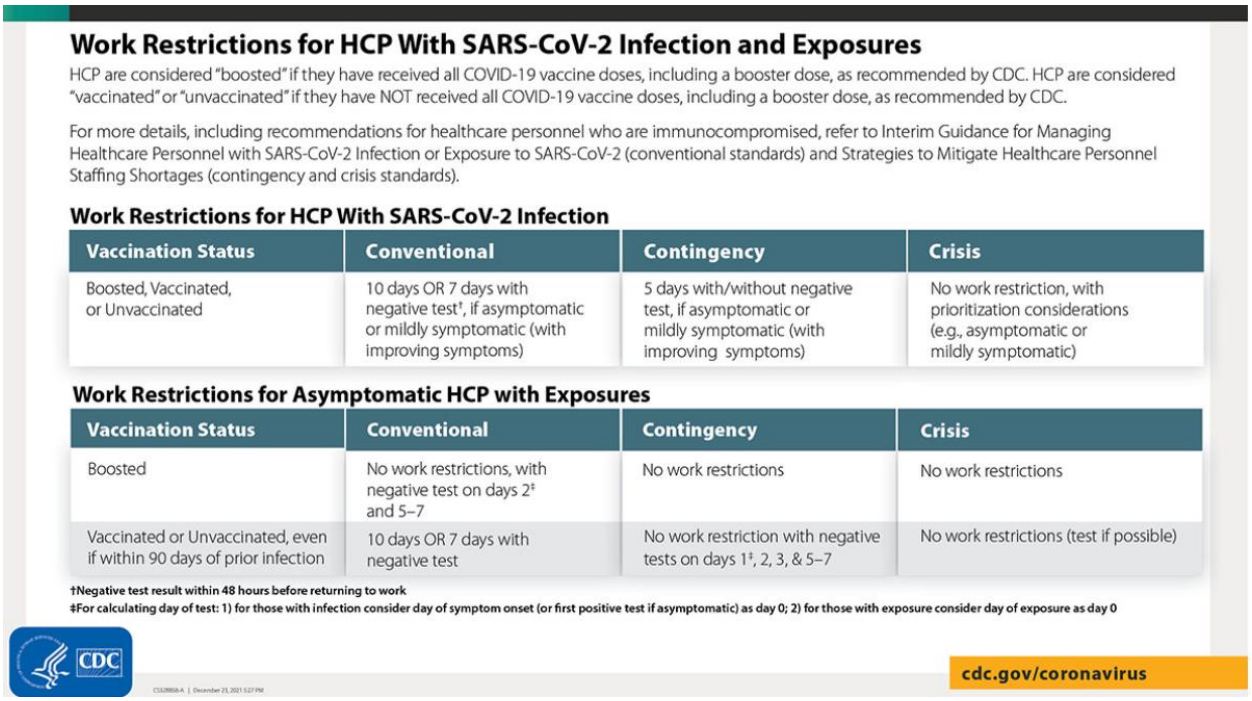
Fin de l'isolation	Pour qui ?	Notes
10 j après l'apparition des symptômes + au moins 3 jours sans fièvre + amélioration clinique	Patients ambulatoires en isolement à domicile	- 7 jours après le test pour les patients asymptomatiques - y compris les patients sortis de l'hôpital <14 jours après l'apparition des symptômes - à l'exclusion des patients dans les institutions résidentielles
14 j après l'apparition des symptômes + au moins 3 jours sans fièvre + amélioration clinique	Patients hospitalisés/résidents d' institutions résidentielles	- par exemple, les centres de soins résidentiels - sauf les patients nécessitant des soins intensifs
Au moins 3 jours sans fièvre + amélioration clinique **21 j*** après l'apparition des symptômes OU **14d après l'apparition des** symptômes ET PCR 2x <10^5copies/mL avec un intervalle de 24h min.	Soins intensifs	- une approche basée sur les tests et sur les symptômes peut être choisie - *28 jours si le patient est toujours intubé
21 j après l'apparition des symptômes + au moins 3 jours sans fièvre + amélioration clinique	Personnes gravement immunodéprimées	- toujours une consultation multidisciplinaire - déviations possibles au cas par cas - envisager une sérologie et répéter la PCR

8.1. UK RECOMMENDATIONS ON DURATION OF ISOLATION

Examples of when to end self-isolation if you have had COVID-19 symptoms or have received a positive COVID-19 test result



8.2. US RECOMMENDATIONS FOR HCWS



Work Restrictions for HCP With SARS-CoV-2 Infection and Exposures

HCP are considered "boosted" if they have received all COVID-19 vaccine doses, including a booster dose, as recommended by CDC. HCP are considered "vaccinated" or "unvaccinated" if they have NOT received all COVID-19 vaccine doses, including a booster dose, as recommended by CDC.

For more details, including recommendations for healthcare personnel who are immunocompromised, refer to Interim Guidance for Managing Healthcare Personnel with SARS-CoV-2 Infection or Exposure to SARS-CoV-2 (conventional standards) and Strategies to Mitigate Healthcare Personnel Staffing Shortages (contingency and crisis standards).

Work Restrictions for HCP With SARS-CoV-2 Infection

Vaccination Status	Conventional	Contingency	Crisis
Boosted, Vaccinated, or Unvaccinated	10 days OR 7 days with negative test†, if asymptomatic or mildly symptomatic (with improving symptoms)	5 days with/without negative test, if asymptomatic or mildly symptomatic (with improving symptoms)	No work restriction, with prioritization considerations (e.g., asymptomatic or mildly symptomatic)

Work Restrictions for Asymptomatic HCP with Exposures

Vaccination Status	Conventional	Contingency	Crisis
Boosted	No work restrictions, with negative test on days 2‡ and 5–7	No work restrictions	No work restrictions
Vaccinated or Unvaccinated, even if within 90 days of prior infection	10 days OR 7 days with negative test	No work restriction with negative tests on days 1‡, 2, 3, & 5–7	No work restrictions (test if possible)

†Negative test result within 48 hours before returning to work

‡For calculating day of test: 1) for those with infection consider day of symptom onset (or first positive test if asymptomatic) as day 0; 2) for those with exposure consider day of exposure as day 0

CDC

cdc.gov/coronavirus

8.3. APERÇU DES ÉTUDES CLINIQUES AUTODIAGNOSTIC

Table: Sensitivity and specificity of self-administered rapid Ag tests, compared to RT-PCR on NPS

Study	Type and place of test	Population	N positive	Sensitivity	Specificity	PPV
Schuit et al.	At-home saliva self-test	Test center attendees	183	46.7%	99.0%	76.6%
		High viral load	143	**54.9%**	98.8%	70.9%
	At home nasal self-test (SD Biosensor)	Test center attendees	183	68.9%	99.5%	91.2%
		High viral load	143	**83.9%**	99.5%	90.2%
		Symptomatic	149	78.5%	99.5%	92.1%
		Asymptomatic	31	22.6%	99.6%	77.8%
		Symptomatic and high viral load	125	90.4%	-	-
		Asymptomatic and high viral load	18	38.9%	-	-
		No prior COVID infection	161	72.7%	99.6%	92.9%
		No prior infection and high viral load	126	83.1%	-	-
Stohr et al.	At-home BD Veritor RDT on mid-turbinate swab	Test center attendees	179	49.1%	99.9%	-
		High viral load	-	**76.1%**	99.7%	-
		Compared to composite index for infectiousness	-	**75.9%**	99.9%	-
	At-home Roche-RDT on mid-turbinate swab	Test center attendees	198	61.5%	99.7%	-
		High viral load	-	**80.1%**	99.1%	-
		Compared to composite index for infectiousness	-	**78.8%**	99.7%	-
Lindner et al.	SD-Biosensor RDT at OPD	Symptomatic patients	40	82.5%	100%	-