

# INTERIM CLINICAL GUIDANCE FOR PATIENTS SUSPECTED OF/CONFIRMED WITH COVID-19 IN BELGIUM

19 March 2020; Version 4

## 1. Preliminary note

This document has been revised on the 19th of March 2020 to provide support to the diverse groups of Belgian clinicians (general practitioners, emergency physicians, infectious disease specialists, pneumologists, intensive care physicians) who will have to face suspected/confirmed COVID19 cases, during the amplification phase of the epidemic in Belgium.

The guidance has been first developed by a task force: Dr Sabrina Van Ierssel, Universitair Ziekenhuis Antwerpen, UZA (Sabrina.VanIerssel@uza.be); Dr Nicolas Dauby, Hôpital Universitaire Saint-Pierre Bruxelles, HSP (Nicolas\_Dauby@stpierre-bru.be); Dr Emmanuel Bottieau, Instituut voor Tropische Geneeskunde, ITG (ebottieau@itg.be). It has been revised in fast track by a larger group of physicians and scientists from different specialties/disciplines. It is based on the best (but very incomplete) clinical evidence that is currently available, and is purposed to become a “living guideline” which will be regularly updated each time new relevant scientific data will emerge (latest version will always be found via the same [link](#)). Readers are invited to send any additional comment, relevant publication, including from the grey literature, and contribution in priority to the small core group (ideally to all three provided mails). We think however that it is time to provide a guidance based on the protocols that are already in use in the two reference institutions (UZA and HSP) and on additional contributions (literature review by Sciensano, and review of drug availability by the AFMPS/FAGG).

COVID-19 is a mild viral illness in the vast majority of the patients (80%) but may cause severe pneumonitis (with subsequent complications) with substantial fatality rates in elderly and individuals with underlying diseases. About 20% of infected patients need to be admitted, including 5% who require intensive care. Mortality in admitted patients reached 25% in the middle of the epidemic in Wuhan [1]. This document will not elaborate in detail the generic and supportive management of such infections (except if there are some pathogen-specific interventions). It is also not aimed at providing a new extensive review on all potential investigational treatments in the pipeline. We have opted for a short document with synoptic Tables summarizing:

- (1) the selected investigational drugs to consider for CLINICAL USE at this moment in Belgium, with information on *in vitro/in vivo* efficacy;
- (2) the current therapeutic recommendations for each category of COVID-19 patients, with indications and precautions;
- (3) the treatment protocols that are in use in some other European countries, as obtained at the beginning of March 2020.

Rows will be added or subtracted to these Tables according to new evidence and recommendations, through regular updates.

**IMPORTANT:**

At the time being, the use of investigational or off label medicinal products to treat patients suspected or confirmed COVID 19 **should be restricted to hospital use**. We just do not know their clinical efficacy so far. They should therefore not divert health professionals from the optimal supportive care that still provides the highest probability of favorable outcome. Also patients should be each time adequately informed about the uncertain efficacy and respective toxicities of the drugs, and give consent (oral or signed according to the institutions). Participation to multicentric trials will be explored in some hospitals whenever possible but use of standardized case report form during patient management will be strongly encouraged to obtain a fast feedback on any safety issue (in elaboration for remdesivir which is an investigational drug).

Of note, lopinavir/ritonavir and (hydroxy)chloroquine are drugs registered in Belgium for other indications, so that the normal pathway for notification of adverse events has to be used<sup>1</sup>. For compassionate use of Remdesivir and import of chloroquine base, please refer to [Annex 1](#).

## 2. Summary of efficacy data of selected drugs

Table 1 : *In vitro* / *in vivo* efficacy of the drugs selected for treatment of suspected/confirmed COVID-19

Drug	<i>In vitro</i> activity		<i>In vivo</i> activity (animal models)			Clinical studies	Mechanism of action
	SARS-CoV-1	MERS-CoV	SARS-CoV-2	SARS-CoV-1	MERS-CoV		
<b>Remdesivir / GS5734</b> (compassionate use)	+++ [2,3]	+++ [2–5]	+++ [6]	+++ [7]	+++ [4]	Ongoing for SARS-CoV-2 NCT04252664 NCT04257656 NCT04292730 NCT04292899 NCT04280705  Solidarity trial (WHO); Discovery trial (INSERM)	Interactions with viral polymerase [2,5]
<b>Chloroquine phosphate</b> (not marketed in Belgium, but available via import; also available as magistral preparation as chloroquine phosphate;	+++ [8,9]	++ [10]	++ [6]	+/- [11]	Not studied	Ongoing for SARS-CoV-2 [12] NCT04286503	Fusion and un-coating blockade, by lysosomal alkalization [8,9]; Interaction with the ACE2 receptor [8]; “immuno-modulation”?

<sup>1</sup> via [www.notifieruneffetindesirable.be](http://www.notifieruneffetindesirable.be) or [https://www.fagg.be/nl/melden van een bijwerking als gezondheidszorgbeoefenaar](https://www.fagg.be/nl/melden-van-een-bijwerking-als-gezondheidszorgbeoefenaar)

500mg chloroquine  
phosphate = 300mg  
chloroquine base);  
Used for malaria

<b>Hydroxy-chloroquine</b> (Plaquenil®);  Used for lupus, rheumatoid arthritis	+/-? [13]	Not studied	+++ [14]	Not studied	Not studied	Ongoing for SARS-CoV-2 NCT04261517  Substantial reduction of SARS-CoV-2 respiratory viral load in treated patients compared to placebo [15]	Not fully elucidated but assumed to be similar to that of chloroquine
<b>Lopinavir /ritonavir</b> (Kaletra®);  Used in HIV infection	+/- [16–18]	- [19]	Not studied	Not studied	+/- [4,20]	Weak efficacy for SARS-CoV-1; associated with ribavirin & cortico-steroids [18]  Negative results for SARS-CoV-2 in both a RCT and observational study [21,22]; NCT04252885  SOLIDARITY trial ongoing (WHO)	SARS-CoV-2 protease inhibition ?

**Note :** Many other drugs have been/are being investigated, including (list not exhaustive) ribavirin, favipiravir, oseltamivir, darunavir/cobicistat, interferon, mycophenolate, tocilizumab, etc see Landscape analysis of therapeutics WHO 17/02/2020, at [https://www.who.int/blueprint/priority-diseases/key-action/Table\\_of\\_therapeutics\\_Appendix\\_17022020.pdf?ua=1](https://www.who.int/blueprint/priority-diseases/key-action/Table_of_therapeutics_Appendix_17022020.pdf?ua=1).

Treatment guidelines used in other countries are indicated in [Annex 2](#).

The preliminary selection of the three drugs relies on (*in vitro*) efficacy, availability and known safety profile. Key points on safety profile are found in Table 2 and an extensive safety profile and/or SmPC of the proposed drugs can be found in [Annex 3](#). The safety profile of chloroquine can be considered as similar to that of hydroxychloroquine.

### 3. Belgian recommendations for supportive care and adjunctive antiviral treatment for suspected/confirmed COVID-19 cases, according to disease severity.

#### General guiding principles

Experience with other viral infections tell us that antiviral therapy should be administered as early as possible after symptom onset for optimal effectiveness.

- Chloroquine has good *in vitro* activity against SARS-CoV-2 and seems to reduce the duration of viral shedding. This does not mean that this will be translated in clinical efficacy (many previous experiences were disappointing). Results of ongoing clinical trials are eagerly awaited. This drug has been used for decades (at a total of 25 mg/kg within 3 days) for malaria treatment without any monitoring and side effects, including in pregnant women. However, the therapeutic window is quite narrow (cardiotoxicity/arrhythmia), requiring caution for use at higher cumulative dosages. For this reason, we strongly recommend that its use in suspected/confirmed COVID-19 be restricted to hospitalized patients. A very recent article suggests that hydroxychloroquine (drug marketed in Belgium as Plaquenil®) is more potent than chloroquine *in vitro*, so that lower dosages (than initially recommended) could be used [14]. Based on these considerations and some preliminary (pre-published) results from Gautret' study (see below), this option has been preferred in the initial guideline (released on 13<sup>th</sup> March 2020), taking also into account that therapy will be required mostly in older patients and/or in case of severe disease. Since availability of hydroxychloroquine in sufficient quantity might become a problem, instructions for the chloroquine use will be also provided, but more caution will be required. Results of Gautret' study have been just released and confirm that viral positivity in respiratory secretions (measured by PCR) is significantly decreased at day 6 in hydroxychloroquine-treated COVID-19 patients (n=26) versus those with supportive care (n=16 controls): 30% positivity versus 87.5%, p<0.001). This observation strongly supports the current choice of hydroxychloroquine as first-line treatment; we suggest to keep the current recommended dosage (see Table), which is pharmacologically very close to that used in Gautret's study. Of note, in a small subgroup (n=6) of COVID patients incidentally treated with azithromycin for suspected bacterial superinfection, a more pronounced viral suppression was observed, but this observation is still too preliminary to recommend systematic administration of both drugs concomitantly, taking into account some significant risks of interaction[15].
- Lopinavir/ritonavir has been recently shown not to provide clinical benefit in hospitalized patients with COVID-19. Importantly, there was also no impact on viral excretion. This is in line with *in vitro* experiments with SARS-CoV2 but also SARS-CoV1. In this trial however, a possible benefit (shorter stay in ICU) was suggested in patient who were treated early (before 12 days of symptoms). Lopinavir/ritonavir can still be therefore considered a second choice for the moment, when hydroxychloroquine is contraindicated, but only if this treatment could be administered early in the course of the disease (within 10 days after symptoms onset). We consider this treatment as futile if administered later on.
- Remdesivir seems promising *in vitro* (and in some case reports) but availability will remain a key issue for the coming weeks (very restricted use, to the most severe patients, but with also numerous exclusion criteria [see Table 2], which is unfortunately not the best scenario to test this drug). Several clinical trials are ongoing or planned (Solidarity and DisCOVERY trials).

In accordance with WHO interim guidance [23] and a Correspondence in the Lancet [24], *corticosteroids are not recommended as a systemic adjunctive treatment*. Concerns have also emerged in the social media related to the theoretical interferences between ACE2 receptors (used for viral entry) and some medicines such as angiotensin converting enzyme (ACE) inhibitors /angiotensin receptor blockers (ARBs) as well as non-steroidal anti-inflammatory drugs (NSAIDs). There is so far no scientific evidence of any deleterious effect, and therefore no robust instruction regarding their use. By safety however and while waiting pending results, paracetamol may be preferred as first-line symptomatic treatment of pain and fever (at usual dosage), while NSAIDs should be used with caution and according to common practice (contra-indicated in case of renal failure for example). In the same line physicians could CONSIDER in ADMITTED CONFIRMED COVID-19 patients to switch ACE inhibitors/ARBs to an equivalent therapy, BUT changes are not advised in suspected/confirmed patients treated at home where no monitoring is possible (the risks outweighing by far the hypothetical benefits). Any suspected adverse events related to these drugs should be reported through the usual channels, as part of regular pharmacovigilance activities <sup>2</sup>.

The table below is aimed to provide some guidance for adjunctive antiviral treatment (together with optimal supportive care). Comments and suggestions for clarity and feasibility are more than welcome by the writing team. As written above, the latest version of this clinical guidance will always be found via the same [link](#). For all procedures with regards to patient general management (clinical assessment, testing, isolation, reporting etc.), please refer to procedures available at [https://epidemio.wiv-isp.be/ID/Pages/2019-nCoV\\_procedures.aspx](https://epidemio.wiv-isp.be/ID/Pages/2019-nCoV_procedures.aspx). Please note that these Sciensano procedures are also continuously being updated according to the evolution of the epidemic and new clinical evidence. To receive the alerts on procedure or clinical guidance updates, please subscribe at <https://epidemio.wiv-isp.be/ID/Pages/2019-nCoV.aspx>.

***It is important for the clinician to be aware that the critical period for complications is 5 to 7 days after symptom onset. Non-hospitalized patients and discharged patients should be advised to re-contact their treating physician in case of clinical deterioration (ex. dyspnea), and reevaluation (ex by daily phone contact) should be considered on case by case evaluation depending on risk factors, social isolation etc.***

Table 2 : Supportive care & antiviral treatment of hospitalized patients with suspected or confirmed COVID-19

Clinical category	Supportive Care	Additional antiviral therapy	Precautions
<b>Suspicion of COVID-19</b> ➤ <b>Mild-to-moderate symptoms (no dyspnea)</b> ➤ <b>No risk group<sup>3</sup></b> <b><i>ex. Hospitalization for social-related reasons</i></b>	Symptomatic treatment	No	Use paracetamol in first-line (usual dosage), and NSAIDs with caution (if really required)

<sup>2</sup> via [www.notifierunefetindexirable.be](http://www.notifierunefetindexirable.be) or

[https://www.fagg.be/nl/melden\\_van\\_een\\_bijwerking\\_als\\_gezondheidszorgbeoefenaar](https://www.fagg.be/nl/melden_van_een_bijwerking_als_gezondheidszorgbeoefenaar)

<sup>3</sup> Risk groups: age > 65 years AND/OR underlying end organ dysfunction (lung, heart, liver,...), diabetes, coronaropathy, chronic obstructive pulmonary disease, arterial hypertension

<b>Suspicion of COVID-19</b> ➤ <b>Mild-to-moderate symptoms (no dyspnea)</b> ➤ <b>Risk group<sup>4</sup></b> <b>Or</b> <b>Suspicion of COVID-19 AND alarming symptoms (dyspnea)</b>	<i>Case by case discussion, if possible with an Infectious Disease Specialist, to initiate an empirical antiviral therapy, based on the potential delay to obtain results (antiviral therapy is expected to be more efficient if started early in the course of the disease).</i>  <i>If decision to treat empirically, follow the treatment options as described for "CONFIRMED CASES".</i>		
<b>Confirmed COVID-19</b> ➤ <b>Mild-to moderate disease (no O2 requirement/no evidence of pneumonia)</b> ➤ <b>Risk group<sup>4</sup></b>	Symptomatic treatment	Consider start <b>hydroxychloroquine</b> (Plaquenil®) IF NO CONTRA-INDICATION <ul style="list-style-type: none"> <li>• 400 mg at suspicion/diagnosis;</li> <li>• 400 mg 12 h later</li> <li>• Followed by 200 mg BID up to Day 5</li> </ul> <p><i>NB:</i>  <i>stop hydroxychloroquine if follow-up at home</i></p> <p><i>If no hydroxychloroquine available, consider chloroquine base 600 mg (10mg/kg) at diagnosis and 300mg (5 mg/kg) 12 h later, followed by 300 mg (5 mg/kg) BID up to Day 5 or chloroquine phosphate 1000mg at diagnosis and 500mg 12h later, followed by 300mg BID up to day</i></p>	<b>Contra-indications</b> <ul style="list-style-type: none"> <li>➤ <b>QTc &gt; 500 msec</b></li> <li>➤ <b>drug interaction; check at <a href="http://www.covid19-druginteractions.org">http://www.covid19-druginteractions.org</a> (Liverpool)</b>  Interaction potential of hydroxychloroquine is likely the same as chloroquine</li> <li>➤ <b>Myasthenia gravis</b></li> <li>➤ <b>Porphyria</b></li> <li>➤ <b>Retinal pathology</b></li> <li>➤ <b>Epilepsy</b></li> </ul> <p><b>NB: pregnancy is not a contra-indication as such</b> (large safety experience with chloroquine); see risk/benefit balance</p> <p>Perform ECG daily if initial QTc 450-500 msec, and biochemistry according to underlying disease</p>
<b>Confirmed COVID-19 Severe disease</b>  <b>≥ 1 of the following:</b> <ul style="list-style-type: none"> <li>➤ <b>Respiratory rate ≥30/min (adults); ≥40/min (children &lt; 5)</b></li> <li>➤ <b>Blood oxygen saturation ≤93%</b></li> <li>➤ <b>PaO<sub>2</sub>/FiO<sub>2</sub> ratio &lt;300</b></li> <li>➤ <b>Lung infiltrates &gt;50% of the lung field within 24-48 hours</b></li> </ul>	Optimal supportive care in hospital WARD (or ICU)  Provide O2  Consider carefully antibiotics or antifungals according to local epidemiology	Start <b>hydroxychloroquine</b> (Plaquenil®) IF NO CONTRA-INDICATION <ul style="list-style-type: none"> <li>• 400 mg at diagnosis;</li> <li>• 400 mg 12 h later</li> <li>• Followed by 200 mg BID up to Day 5</li> </ul> <p><i>NB: If no hydroxychloroquine available, consider chloroquine base 600 mg (10mg/kg) at diagnosis and 300mg (5 mg/kg) 12 h later, followed by 300 mg (5 mg/kg) BID up to Day 5 OR chloroquine phosphate 1000mg at</i></p>	<b>Contra-indications</b> <ul style="list-style-type: none"> <li>➤ <b>QTc &gt; 500 msec</b></li> <li>➤ <b>drug interaction (check at <a href="http://www.covid19-druginteractions.org">http://www.covid19-druginteractions.org</a> (Liverpool)</b>  Interaction potential of hydroxychloroquine is likely the same as chloroquine</li> <li>➤ <b>Myasthenia gravis</b></li> <li>➤ <b>Porphyria</b></li> <li>➤ <b>Retinal pathology</b></li> <li>➤ <b>Epilepsy</b></li> </ul> <p><b>NB: pregnancy is not a contra-indication as such</b> (large safety</p>

<sup>4</sup> Risk groups: age > 65 years AND/OR underlying end organ dysfunction (lung, heart, liver,...), diabetes, coronaropathy, chronic obstructive pulmonary disease, arterial hypertension

		<p><i>diagnosis and 500mg 12h later, followed by 300mg BID up to day 5</i></p> <p>Consider <b>lopinavir/ritonavir 400/100 mg</b> (= 2 tablets of 200/50 mg) BID for 14 days) <i>as second choice ONLY if hydroxychloroquine/chloroquine contra-indicated and provided it can be administered within 10 days after symptoms onset (check also drug interaction!); or in children &lt; 10 kg (after IDS advice)</i></p>	<p>experience with chloroquine); see risk/benefit balance</p> <p>Perform basic biochemistry daily and ECG daily if initial QTc &gt; 450 msec (+ other indicated investigations)</p> <p>Avoid quinolones if possible, or monitor closely the QT if these antibiotics are needed</p> <p><b>In case antibiotics must be provided, consider to add azithromycin (given its possible synergistic effect with hydroxychloroquine) BUT with a particular caution for interaction and QTc prolongation (daily ECG or cardiac monitoring)</b></p>
<p><b>Confirmed COVID-19</b></p> <p><b>Critical disease</b></p> <p><b>≥ 1 of the following:</b></p> <ul style="list-style-type: none"> <li>➤ <b>Acute Respiratory Distress Syndrome</b></li> <li>➤ <b>Sepsis</b></li> <li>➤ <b>Altered consciousness</b></li> <li>➤ <b>Multi-organ failure</b></li> </ul>	<p>Optimal supportive care in ICU</p> <p>Mechanical ventilation</p> <p>Specific prevention &amp; treatment of ARDS</p> <p>Track secondary bacterial and opportunistic (<i>Aspergillus</i>) infections</p> <p>Prevention of sub-sequent lung fibrosis</p> <p>NB: ongoing studies with dexamethasone, tocilizumab, ... in this most critical group</p>	<p><b>Remdesivir</b> (compassionate use)</p> <ul style="list-style-type: none"> <li>• 200 mg loading dose (IV, within 30 min)</li> <li>• 100 mg OD for 2 to 10 days</li> </ul> <p>If remdesivir unavailable: Consider <b>(hydroxy)chloroquine</b>, crushed in nasogastric tube, at the same dosage and monitoring as above; replace with remdesivir if it becomes available</p> <p>However, since the clinical efficacy of (hydroxy)chloroquine is not demonstrated, caution is required in case of kidney/liver/cardiac failure, and abstention in such situations is preferred</p>	<p><b>At this moment very restricted availability of remdesivir (long delay for supply) and very strict criteria released by Gilead</b></p> <p><b>Inclusion criteria</b> ICU + confirmation SARS-Cov-2 by PCR + mechanical ventilation</p> <p><b>Exclusion criteria</b></p> <ul style="list-style-type: none"> <li>- Evidence of MOF</li> <li>- Need of inotropic agents</li> <li>- Creatinine clearance &lt; 30 ml/min, dialysis, or hemofiltration</li> <li>- Transaminases &gt; 5X ULN</li> </ul> <p><b>This means that most (if not all) patients in ICU will not be eligible.</b></p> <p>Still limited information on drug interaction is available. Risk-benefit assessment should be made individually. Close monitoring of remdesivir toxicity or diminished efficacy of concomitant drug is recommended. Check also for interaction with remdesivir at <a href="http://www.covid19-druginteractions.org">http://www.covid19-druginteractions.org</a> (Liverpool).</p>

## 4. Annexes

### Annex 1: Procedures

#### **Emergency Compassionate use procedure** (as stated in art 107/1 ([link](#)))

When using Remdesivir for compassionate use ([application at Gilead \(https://rdvcu.gilead.com\)](#)), a notification to [umn@fagg-afmps.be](mailto:umn@fagg-afmps.be) and to the ethics committee of the concerned site is to be made. The notification should include the following information:

- The name of the sponsor
- The name of the treating physician
- A sworn statement from the physician that the informed consent was obtained in accordance with the law of 22 August 2002 on patient rights
- The indication
- The motivation that without appropriate treatment, it is expected that the patient's death occurs in a short delay or that the risk for the consequences of the absence of treatment is greater than the risk for the consequences of starting the treatment is included. Please discuss the indication of the patient as well as the previous treatments that the patient received, the unmet need and the benefit/risk balance of treatment along with the urgency for this treatment.

#### **Import** (as stated in art 105 ([link](#)))

Chloroquine base can be imported from NL (A-CQ 100) or FR (Nivaquine) with a prescription and a doctor's statement (see bijlage VI van de geneesmiddelenwet, annexe VI de la loi sur les médicaments) directed to the hospital pharmacy. However availability is subject to change.

*If you have problems obtaining the medicinal products in this guideline, please contact [coronashortages@fagg-afmps.be](mailto:coronashortages@fagg-afmps.be).*

## Annex 2: Therapies for confirmed COVID-19 in some European countries

Disease category	Italy (Lombardia protocol)	France	Netherlands	Switzerland
➤ <b>Mild-to-moderate disease</b>	No antiviral treatment	No antiviral treatment	No antiviral treatment	No antiviral treatment
➤ <b>No risk group</b>				
➤ <b>Mild-to-moderate disease</b>	lopinavir/ritonavir + chloroquine or hydroxychloroquine for 5-7 days	Consider lopinavir/ritonavir; duration depending on monitoring of viral excretion	Consider chloroquine for 5 days	? (not mentioned)
➤ <b>Risk group</b>				
➤ <b>Severe disease</b>	remdesivir + chloroquine or hydroxychloroquine for 5-20 days (if no remdesivir: maintain lopinavir/ritonavir with chloroquine)	remdesivir; duration depending on monitoring of viral excretion  (No second choice)	chloroquine D1 (600-300 mg; D2-D5 300 mg BID)  lopinavir/ritonavir as second option (for 10-14 days)	Lopinavir/ritonavir (atazanavir/ritonavir as second choice)
➤ <b>Critical disease</b>	remdesivir + chloroquine or hydroxychloroquine for 5-20 days  (if no remdesivir: maintain lopinavir/ritonavir with chloroquine)	remdesivir; duration depending on monitoring of viral excretion  Lopinavir/ritonavir as second choice (case by case)	remdesivir (for 10 days) + chloroquine (for 5 days)	remdesivir as first choice (for 10 days)  lopinavir/ritonavir (+ hydroxychloroquine if < 65 years/no comorbidity) as second choice (if remdesivir unavailable). Tocilizumab (in case of MOF and inotropic support)

## Annex 3: Safety profiles

 Safety profile remdesivir.pdf

 Safety profile chloroquine.pdf

 Kaletra RCP.pdf

 Kaletra SKP.pdf

 Plaquenil RCP.pdf

 Plaquenil SKP.pdf

Please download this document (rather than visualize in Web browser) to enable these links to pdf documents to work

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