

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

Table of Contents

1. Risk of infection with SARS-CoV-2 and development of severe COVID-19 in people living with HIV and viral hepatitis	2
2. Preventing COVID-19 in people living with HIV and viral hepatitis.....	3
3. HIV, pregnancy, and COVID-19.....	4
4. TB/HIV and COVID-19.....	5
5. Continuity of HIV, viral hepatitis and STI prevention, testing and treatment services in the context of the COVID-19 pandemic ...	6
<i>Continuity of prevention services.....</i>	7
<i>Continuity of HIV testing services.....</i>	9
<i>Continuity of treatment services.....</i>	12
6. Antiretrovirals and COVID-19	14
7. Diagnostics and COVID-19.....	17
8. Human rights, stigma and discrimination.....	19
9. COVID-19 and clinical research	21
10. COVID-19 surveillance and digital health information systems	21

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

This Q&A guidance is intended to assist national HIV and viral hepatitis programmes and their health workers to provide guidance to persons affected by HIV and viral hepatitis, and to maintain continuity of essential services during the COVID-19 pandemic. WHO is continually monitoring and responding to the COVID-19 pandemic and will update the Q&A as more information becomes available, including how it is affecting the comprehensive HIV, hepatitis and sexually transmitted infection (STI) responses worldwide.

1. Risk of infection with SARS-CoV-2 and development of severe COVID-19 in people living with HIV and viral hepatitis

Are people living with HIV and viral hepatitis at increased risk of being infected with SARS-CoV-2, the virus causing COVID-19?

HIV

At present there is no evidence that the risk of infection or complications of COVID-19 is different among people living with HIV (PLHIV) who are clinically and immunologically stable on antiretroviral treatment (ART) when compared with the general population. Some PLHIV may have the known risk factors for COVID-19 complications, such as diabetes, hypertension, obesity and other noncommunicable diseases, and so may have increased risk of COVID-19 unrelated to HIV infection. It is also known that during the SARS and MERS outbreaks there were only a few case reports of mild disease among PLHIV. To date, there are few case reports of PLHIV who had moderate COVID-19, and all have recovered.¹

PLHIV with advanced disease, with low CD4 cell count and high viral load, and those who are not taking ART have an increased risk of opportunistic infections and related complications in general. It is unknown if the immunosuppression caused by HIV will put a person at greater risk for COVID-19 and, until more is known, additional precautions for all PLHIV with advanced HIV or poorly controlled HIV should be employed.^{2,3}

Viral hepatitis

Currently, there is limited information on persons with chronic viral hepatitis B or C who are exposed to COVID-19. There is no evidence to suggest that people living with hepatitis B or hepatitis C, who are otherwise well and do not have advanced liver disease, and do not have any of the known risk factors for COVID-19, are at greater risk of infection or complications of COVID-19.

¹ Feng Zhu, Yang Cao, Shuyun Xu, Min Zhou. Co-infection of SARS-CoV-2 and HIV in a patient in Wuhan city, China, *J of Medical Virology*. 2020; 92(6):529-530. (<https://onlinelibrary.wiley.com/doi/full/10.1002/jmv.25732>)

² DHHS, Interim Guidance for COVID-19 and Persons with HIV; 2020 (<https://aidsinfo.nih.gov/guidelines/html/8/covid-19-and-persons-with-hiv--interim-guidance-/554/interim-guidance-for-covid-19-and-persons-with-hiv>, accessed 20 March 2020).

³ US CDC, COVID-19: People who are at higher risk for severe illness; 2020 (<https://www.cdc.gov/coronavirus/2019-ncov/specific-groups/people-at-higher-risk.html>, accessed 22 March 2020).

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

People who have developed advanced liver disease (including decompensated cirrhosis) or have deteriorating health as a result of hepatitis B or C infection or another cause, or who have had a liver transplant, may well be at higher risk of serious illness from COVID-19. This is regardless of the underlying cause and in the absence of other conditions such as diabetes or cardiovascular disease. This group of individuals have poor immune function and worse outcomes from acute respiratory distress syndrome than the rest of the critically ill population.^{4,5} People who have ongoing health conditions as a result of previous chronic hepatitis C infection may also be at higher risk, despite having been cured of their infection.

All individuals with underlying liver disease or risks for liver disease should be considered the same as other high-risk groups, and they should be especially vigilant in protecting themselves from contracting COVID-19, as they are at risk of more serious illness.

2. Preventing COVID-19 in people living with HIV and viral hepatitis

What measures should be taken by persons with chronic disease, including advanced liver disease or PLHIV?

At present, it is advised that people with advanced liver disease and PLHIV with advanced disease, those with low CD4 cell count and high viral load, and PLHIV who are not taking ART should adhere very strictly to physical distancing measures in order to protect themselves. These include:

- Avoid contact with anyone who is displaying possible symptoms of COVID-19, such as high temperature, continuous cough, chills with shaking, new loss of taste or smell, and/or shortness of breath or difficulty breathing.
- Avoid non-essential use of public transport.
- Work from home when possible.
- Avoid gatherings of any size especially in closed spaces, either public or private.
- Avoid gatherings with friends and family and limit face-to-face interaction. Instead, keep in touch using remote technology such as phone, internet, and social media.
- Use telephone or online services to contact a doctor or other essential services.

In addition, people with significant liver disease and PLHIV are recommended to receive vaccinations against influenza and pneumococcal disease.

⁴ Boettler T, Newsome PN, Mondelli MU, Maticic M, Cordero E, Cornberg M et al. Care of patients with liver disease during the COVID-19 pandemic: EASL-ESCMID position paper, JHEP Reports; 2020. (DOI: <https://doi.org/10.1016/j.jhepr.2020.100113>)

⁵ Gacouin A, Locufier M, Uhel F, Letheulle J, Bouju P, Fillatre P et al. Liver cirrhosis is independently associated with 90-day mortality in ARDS patients. Shock 2016; 45: 16–21.

(https://journals.lww.com/shockjournal/Fulltext/2016/01000/Liver_Cirrhosis_is_Independently_Associated_With.4.aspx)

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

These recommendations are in addition to basic [WHO-recommended protective measures](#) for the general population.

3. HIV, pregnancy, and COVID-19

Can pregnant or postpartum women living with HIV transmit the SARS-CoV2 to their unborn child or infant?

There are few data on the clinical presentation of COVID-19 in specific populations, such as children and pregnant women,⁶ but findings from a small published study suggest that there is currently no evidence for intrauterine infection caused by vertical transmission in women who develop COVID-19 pneumonia in late pregnancy.⁷ However, transmission after birth via contact with infectious respiratory secretions is a concern. Infants born to mothers with suspected, probable, or confirmed COVID-19 should be fed according to standard infant feeding guidelines,⁸ while applying necessary precautions for infection prevention and control. As with all suspected or confirmed COVID-19 cases, symptomatic mothers who are breastfeeding or practicing skin-to-skin contact or kangaroo mother care should practice respiratory hygiene, including during feeding (for example, use of a medical mask when near a child if the mother has respiratory symptoms), perform hand hygiene before and after contact with the child, and routinely clean and disinfect surfaces with which the symptomatic mother or other household members have been in contact.⁹

Should pregnant and breastfeeding women living with HIV with COVID-19 and their newborns be managed differently?

There is currently no known difference between the clinical manifestations of COVID-19 in pregnant or breastfeeding women and other patients; similarly, there are no known differences in risk of fetal compromise or severe neonatal illness between pregnant or breastfeeding women with or without COVID-19. Pregnant and recently pregnant women with suspected or confirmed COVID-19 should be treated with supportive and management therapies, taking into account the immunologic and physiologic adaptations during and after pregnancy which may overlap with COVID-19 symptoms.

⁶ Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance. Geneva: World Health Organization; 2020. ([https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](https://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected))

⁷ Huijun Chen, Juanjuan Guo, Chen Wang, Fan Luo, Xuechen Yu, Wei Zhang et al. Clinical characteristics and intrauterine vertical transmission potential of COVID-19 infection in nine pregnant women: a retrospective review of medical records; 2020. (DOI: [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3))

⁸ Global strategy for infant and young child feeding. Geneva: World Health Organization; 2003. (<https://apps.who.int/iris/bitstream/handle/10665/42590/9241562218.pdf>)

⁹ Centres for Disease Control and Prevention. Coronavirus Disease 2019 (COVID-19), Considerations for inpatient obstetric healthcare settings; 2020. (<https://www.cdc.gov/coronavirus/2019-ncov/hcp/inpatient-obstetric-healthcare-guidance.html>)

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

Data are limited, but until more evidence is available special consideration should be given to pregnant women with concomitant medical illnesses who could be infected with COVID-19. There have been no reported deaths in pregnant women,¹⁰ however COVID-19 testing of symptomatic pregnant women may need to be prioritized to enable access to specialized care. All recently pregnant women with COVID-19 or who have recovered from COVID-19 should be provided with information and counselling on safe infant feeding and appropriate infection prevention and control (IPC) measures to prevent COVID-19 virus transmission.¹¹

With suspected (under investigation) or confirmed disease, management is similar to that for non-pregnant patients with appropriate isolation of cases that are under investigation or confirmed. Obstetric facilities must be notified and prepared noting that each infant born to any mother with confirmed COVID-19 should be considered a 'person under investigation' (PUI) and should be isolated according to the IPC guidance for PUIs. Currently, it is unknown whether newborns with COVID-19 are at increased risk for severe complications.

4. TB/HIV and COVID-19

How can we distinguish between TB and COVID-19 among PLHIV?

Symptoms of tuberculosis (TB) and COVID-19 may overlap as discussed in the [WHO TB and COVID-19 information note](#); however there are also differences. It is not known if COVID-19 symptoms are different among people living with HIV so, as with other patients presenting with symptoms suggestive of either COVID-19 or TB, the patient should be assessed according to that guidance.

How does WHO recommend ART initiation be offered in patients with TB symptoms in this COVID-19 pandemic situation, to avoid multiple visits to health facilities?

HIV services should not be disrupted, including the process of ART initiation, due to a shift in service approaches during the COVID-19 pandemic, particularly for patients with advanced HIV disease. ART should be initiated according to usual timing although follow-up and monitoring may utilize eHealth and mHealth strategies to the extent possible, based on patient need and availability of the technology. It is noted that in-person peer-support group meetings, as well as other support activities that require a gathering of groups, will likely not continue at this time. Every effort should be made to protect patients and health

¹⁰ Royal College of Obstetricians and Gynaecologists. Coronavirus (COVID-19) infection and pregnancy. Information for healthcare professionals, version 8: Updated 17 April 2020. (<https://www.rcog.org.uk/coronavirus-pregnancy>)

¹¹ Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: Interim guidance. Geneva: World Health Organization, 2020. (<https://www.who.int/docs/default-source/coronaviruse/clinical-management-of-novel-cov.pdf>)

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

workers from acquiring COVID-19 through strengthened IPC measures in facilities and at the community level.

How will COVID-19 affect contact tracing and community outreach for TB and HIV treatment?

Usual community-based services may be compromised during the COVID-19 pandemic due to physical distancing recommendations. Use of telephone communications and digital health technologies may be needed to support patients on TB treatment, and trace contacts.

5. Continuity of HIV, viral hepatitis and STI prevention, testing and treatment services in the context of the COVID-19 pandemic

There have been reports of different types of disruptions to HIV, hepatitis and STI services since the onset of the COVID-19 pandemic. These have been due largely to a shift in resources and services to focus on the COVID-19 response, control measures such as lockdown and curfews, or a lack of public transport. The effects of these disruptions include reduced uptake of services for assessment, treatment and follow-up visits leading to disruption of ongoing treatment; lack of transport for lab samples as courier companies are not able to maintain services; and interruption of HIV and hepatitis surveillance activities. There have also been anecdotal reports of some disruption in the supply chain for medicines, due to suspension of importation and exportation of goods.

How can programmes generally ensure continued access to HIV, hepatitis and STI services during the COVID-19 pandemic?

It is important to assure continuous access to essential HIV, viral hepatitis and STI prevention, testing and treatment services even when movement restrictions are part of the public health response to the COVID-19 pandemic. While delivery of essential services can and should be maintained, they will need to be reorganized, respecting physical distancing and other core COVID-19 control measures. Some commodities may be provided through community distribution points, pharmacies, grocery stores, and vending machines, and in some settings through internet and postal systems. Supplies can also be provided in larger quantities for longer time periods.

It is crucial to guarantee the safety of health-care workers, including community and peer health workers, as well as clients, through appropriate PPE, hand hygiene, respiratory hygiene, and physical distancing measures. Adaptations such as increased use of phone calls and digital tools (e.g. videos, websites, social media, and text messages) can be considered.

Vulnerable populations, including members of key populations and homeless or displaced people, may be at increased risk of infection because of additional comorbidities, reduced ability to practice restricted movement or physical distancing, and limited access to health services.

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

It is critical that services that reach these populations such as community-based services, drop-in centres and outreach services can continue providing life-saving prevention (distribution of condoms, needles and syringes), testing and treatment (in particular take-home medications for opioid dependence such as methadone and buprenorphine) while ensuring the safety of staff and clients.

More specifically, while access to essential services should be maintained, evidence-based measures to reduce possible transmission should be considered, adapted and implemented. These include:¹²

- applying standard precautions for all patients (including ensuring that all patients cover their nose and mouth with a tissue or elbow when coughing or sneezing, offering a medical mask to patients with suspected COVID-19 infection while they are waiting in the service, provide instruction on appropriate hand hygiene etc.);
- health-care and outreach workers, as well as peer educators and clients should apply hand-hygiene measures;
- ensuring triage, early recognition, and source control (isolating patients with suspected SAR-CoV2 infection)
- ensuring there is adequate ventilation in all areas in the health-care facility;
- maintaining spatial separation of at least 1 meter between all patients within all types of services;
- following cleaning and disinfection procedures consistently and correctly;
- dispensing medicines (for treatment of HIV, TB and other chronic conditions such as opioid dependence, and for pre-exposure prophylaxis [PrEP]) for longer periods allowing reduced frequency of patient visits;
- considering reduction of services to the most critical ones (provision of essential treatment and prevention services; services such as counselling sessions may be reduced or adapted).

Continuity of prevention services

Is it important to consider HIV, viral hepatitis and STI prevention during the COVID-19 pandemic?

Supporting continuity of supply chains for critical prevention commodities should be prioritized. The COVID-19 response will continue to absorb resources and disrupt supplies, and it will lead to reduced production of some health products including condoms and needles and syringes. This situation will continue for the foreseeable future. It is therefore critical to include key HIV, viral hepatitis and STI prevention supplies and contraceptive supplies as part of essential commodity security plans. This includes male and female condoms, lubricants, clean needles and syringes, Hep B vaccine, and PrEP as well as contraceptives. Community engagement, including through virtual platforms, should be prioritized to

¹² Adapted from: Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected: Interim guidance. Geneva: World Health Organization, 2020. [https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-\(ncov\)-infection-is-suspected-20200125](https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125)

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

ensure that real-time information about the availability of commodities is shared with national and local level programme managers.

How can HIV, viral hepatitis and STI prevention be delivered safely?

Integrated prevention service delivery is critical for reaching people with and vulnerable to HIV, viral hepatitis and STIs. Many prevention, care and treatment services for HIV, viral hepatitis and STIs rely on strong contributions from the community, and peer outreach workers and community health-care workers provide a broad range of services.

Essential prevention services for HIV, viral hepatitis and STIs must be continued. These include:

- providing access to condoms for prevention of HIV, HBV, and STI;
- harm reduction programming for people who inject drugs—including needle and syringe programs (NSP) and referral and support for opiate substitution therapy (OST);
- hepatitis B immunization, including timely birth dose;
- prevention of mother-to-child transmission of HIV, HBV and syphilis;
- testing of donated blood for HIV, HBV, HCV, and syphilis.

The most essential services, including outreach services, can and should be maintained, but they will need to be reorganized, respecting physical distancing and other core COVID-19 control measures. Some commodities may be provided through community distribution points, pharmacies, grocery stores, and vending machines, and in some settings through internet and postal systems. Supplies can also be provided in larger quantities for longer time periods.

Should some prevention interventions be temporarily delayed or repurposed during the COVID-19 response?

Every effort should be made to ensure that prevention interventions that do involve mass gatherings are temporarily delayed or modified during the COVID-19 response. Community theatre and education events, film festivals and similar activities will need to be suspended. The community focus of many voluntary medical male circumcision (VMMC) programmes means they may need to be delayed while mass gatherings are reduced; in those contexts, clinical staff may be deployed to other services. VMMC facility space may be repurposed and some of the personal protective equipment (PPE) used in these services may be used for health workers providing COVID-19-related essential services. In addition, VMMC programmes have built competencies that may support the COVID-19 response in East and southern African countries such as general IPC including hand hygiene, the development of person-centered messages, and the capacity of community health workers to reach community leaders and men with health messages. VMMC services will need to be restored after resources can be redirected, or resupplied in the case of PPE, back to VMMC services.

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

Decisions regarding the provision of PrEP services will likely be made at a local level. Experienced PrEP users may similarly be given multi-month prescriptions according to national guidance. Individuals initiating PrEP should continue to return for a 1-month follow-up testing and clinic visit before receiving multi-month prescriptions. This is to rule out acute HIV infection, assess adverse effects and determine intention to continue PrEP use. However, flexibility for the 1-month visit can be considered for motivated clients who have not had a recent (in the past 3 weeks) potential exposure to HIV. These decisions could be made on a case-by-case basis between providers and clients initiating PrEP for the first time.

Further information on maintaining HIV prevention services in the time of COVID-19 and other resources can be found on [the Global HIV Prevention Coalition website](#).

Continuity of HIV testing services

Should countries continue HIV testing services?

It is important to **continue to support people with undiagnosed HIV to get tested and linked to ART** by ensuring continuous access to HIV testing services (HTS). PLHIV with advanced disease and those not taking ART must be identified as a priority because they are at high risk for poor health outcomes and will continue to transmit HIV to partners and from mother to child. They may also have increased risk for serious illness with COVID-19 infection if they remain undiagnosed and do not initiate ART. HIV self-testing (HIVST) is an important tool to maintain, and possibly scale up, HIV screening. Settings where patients are being screened for COVID-19 can also offer HIV testing, especially if patients report they have never tested or not tested in the past year.

For HIVST, ensure clear messaging is provided on who to call with a reactive test as it may not be possible to seek immediate follow-up services safely at local health facilities while COVID-19 control measures are in place.

For ART initiation, PLHIV with COVID-19 should be started on ART on the day of diagnosis, at the location of the diagnosis, and provided a 3-month supply at initiation to reduce the need to visit a health facility while COVID-19 remains a risk, with greater emphasis placed on testing and ART initiation outside of facilities (e.g. through outreach and mobile services). If it is not possible to initiate ART on the same day as diagnosis, the client should be referred and scheduled to start at a community service point or through mobile outreach.

Should countries prioritize some HTS approaches?

Facility-based HTS that are part of ongoing critical clinical services should continue and be prioritized. These include testing pregnant women for HIV and syphilis in antenatal care, early infant diagnosis (EID) of HIV-

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

exposed children and testing for individuals with symptoms or conditions indicative of HIV, or with related co-infections (TB, STIs, hepatitis), co-morbidities or malnutrition. Testing as part of ongoing programmes for key populations and other vulnerable populations may continue but should be adapted to reduce in-person contact and may need to be paused depending on local context and guidance from authorities.

Community-based, mobile and outreach HTS models should be **managed with greater caution and adapted** to comply with national authorities' recommendations on physical distancing. The frequency of community or outreach visits, number of clients participating in outreach sessions, and pattern of participation (e.g. staggered to minimize contact) can be adapted depending on local context and guidance from authorities.

See question on [HIV partner services \(index/family testing\)](#) below.

Should assisted partner notification, provider-assisted referral, or other partner services continue?

Partner services (often called index or family testing) may continue to be offered as a way of reaching the partners and biological children of PLHIV **who are presenting at facilities**. However, approaches to testing will need to take into consideration the need for physical distancing and use of PPE by providers. Adaptations will be required, such as increased use of phone calls and contactless distribution of HIVST kits, with confirmatory testing in the facility only for those with reactive HIVST results if other options are not available. It is critical that the safety of HTS providers, outreach workers and clients is ensured during testing procedures and that contacts and community members are not placed at increased risk for COVID-19 during the pandemic.

In-person provider-assisted referral at people's homes or in the community should be discouraged and will likely be paused or restricted in many countries. Partners and family members who are informed of possible exposure may need to test at a later date, once COVID-19 restrictions are relaxed. Alternatively, they could be offered HIVST kits where available. If phone tracing is not possible, as often is the case with key populations, in-person provider-referral with provision of HIVST kits, or a message to test later, would be acceptable.

Providers can use phone calls as an opportunity to educate about COVID-19 symptoms, physical distancing, hand hygiene, and other key messages as these evolve. They should also incorporate messages on calls that people should not come to the facility if having any symptoms consistent with COVID-19 unless needing care for their COVID-19 or other urgent symptoms.

Can we leverage partner/index/family and testing approaches for HIV to do contact tracing for COVID-19?

It may be possible to adapt training and implementation materials created for HIV partner services (index/family testing) to develop programmes for COVID-19 contact tracing because several key elements are similar. These include ensuring participation is non-coercive and voluntary and: 1) eliciting contacts; 2)

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

conducting phone or in-person tracing; 3) communicating key messages to contacts. Existing materials that train providers to perform these core activities, and that stress confidentiality, privacy, effective communication and professionalism, will be needed for COVID-19 tracing. Approaches to partner/index/family training for HIV can be used for COVID-19 contact tracing such as active learning with role play, supervision with regular support and feedback, and monitoring of tracing calls and visits to ensure accuracy and appropriateness of messages.

How can HIV self-testing be leveraged to assure ongoing access to HTS?

HIVST can play an important role in ensuring continuity of HTS. In addition to personal use of HIVST kits, self-tests may also be provided to sexual and/or drug injecting partners of people with HIV (partner services), and to the social contacts of key populations (social network-based testing). In some high HIV burden settings, pregnant women may also deliver HIVST kits to their male partners. It is important to strategically implement HIVST by prioritizing areas and populations with the greatest needs and gaps in testing coverage.

While many countries have developed and are implementing HIVST policies, several countries have yet to introduce HIVST. In the context of COVID-19, countries should consider how to quickly overcome policy, regulatory and procurement barriers to routine implementation of HIVST. See [latest WHO guidance on HIVST](#).

Which HIVST distribution models can be considered in the context of COVID-19?

A number of HIVST models can be used to ensure ongoing access to HIV testing and can be adapted to the local COVID-19 context:

- Clients seeking HTS at facilities can be given HIVST kits for use within the facilities or for later use to reduce facility burden and minimize contact with health-care workers.
- In high HIV burden settings, HIVST kits can be given to women presenting for ANC so they can provide a kit to their male partner.
- People with HIV can be provided with HIVST kits to distribute to their sexual and/or drug injecting partners when provider-assisted referral is not feasible.
- Members of key population communities, HIV-positive or HIV-negative, can be provided HIVST kits to distribute to their sexual and/or drug injecting partners, peers or social contacts while practicing physical distancing measures.
- Consider placing HIVST kits and other prevention materials (condoms, lubricants and relevant educational materials) at an accessible place for clients to take to minimize contact.
- HIVST kits may be distributed through community-based fixed sites or through mobile outreach as long as appropriate precautions are undertaken.
- HIVST availability through online platforms, retail outlets, pharmacies and vending machines.

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

- Community-based HIVST distribution may be scaled down or paused while COVID-19 restrictions are in place.

All programmes using HIVST, as with standard HTS, need to ensure confirmatory HTS is available for those with a reactive test. This is essential for diagnosing and treating all people with HIV.

- *Further information on HIVST can be assessed using the following resources on the WHO HIVST webpage at: <https://www.who.int/hiv/topics/self-testing/en/>*
- *2019 WHO guidelines including HIVST: <https://www.who.int/hiv/mediacentre/news/hts-info-app/en/>.*
- *2019 HIVST policy brief: <https://www.who.int/publications-detail/consolidated-guidelines-on-hiv-testing-services-for-a-changing-epidemic>*

Continuity of treatment services

What temporary strategies can programmes use to support continuity of treatment and follow-up?

- **Use of multi-monthly prescriptions and/or courier companies to ensure continuity of treatment services.**
 - **HIV:** An adequate supply of medicines should be provided to all clinically stable adults, adolescents, children, and pregnant and breastfeeding women as well as members of key populations (people who inject drugs, sex workers, men who have sex with men, transgender people and people living in prisons and closed settings) who can benefit from simplified ART delivery models that include multi-month prescriptions (from 3–6 monthly supply). This reduces the frequency of visits to clinical settings and ensures continuity of treatment during possible disruptions to freedom of movement and clinic schedules during the COVID-19 outbreak. Experienced PrEP users may similarly be given multi-month prescriptions according to national guidance. Individuals initiating PrEP should continue to return for a 1-month follow up testing and clinic visit before receiving multi-month prescriptions.
 - **Viral hepatitis:** An adequate supply of medicines should also be provided to all clinically stable patients on treatment to ensure treatment continuation (3-6 monthly supply for hepatitis B) or completion (12 or 24 weeks for hepatitis C), to reduce unnecessary clinic visits to collect medicines, especially given restrictions on movement and public transport during the COVID-19 outbreak. In many countries, approval has been given for longer-term dispensing of medications to patients for all chronic diseases, including for viral hepatitis during COVID-19. There may also be a need to establish a system to deliver medication

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

directly to patients' homes, through use of courier companies, or engagement with community-based services, pharmacies, and outreach workers including lay health workers.

- **Sexually transmitted infections:** Depending on the context, STI services may not be considered an essential service. However, patients with STI symptoms should be managed syndromically¹³ as much as possible. Where limited STI services are possible, strict physical distancing measures should be ensured. Limit number of clinic attendees and visits through on-line appointment bookings to manage patients and limit patient flow. Virtual STI case management through web-based or phone-based clinical services may be considered in collaboration with pharmacies that can dispense treatment based on WHO guidance. Targeted STI screening through home-based sample collection that can be sent to a designated laboratory for testing, with test results and treatment provided through on-line or mobile phone services, can be explored. Expedited partner notification (providing the same treatment to sex partners) should be explored with the STI patients to prevent re-infection, but should be balanced with the potential for negative consequences such as domestic violence. Screening of pregnant women for HIV, HBV and syphilis should be maintained as an essential service where antenatal care services are available.
- **TB:** Efforts to reduce encounters with health facilities should continue, and programmes should transition to multi-month prescription strategies, if not already underway, and align visits for HIV and TB treatment. As highlighted in the [TB information note](#), adequate stocks of TB medicines should be provided to all patients to take home to ensure treatment completion without having to visit treatment centres unnecessarily to collect medicines. Use of digital health technologies should be intensified to support patients and programmes through improved communication, counselling, care, and information management, among other benefits. Community delivery of medications may also be considered where feasible. Provision of TB preventive treatment should continue, and as above, follow-up should minimize health-care facility visits and utilize digital health technologies and telephone communications to the extent possible.
- **Opioid Agonists Maintenance Treatment:** Treatment and care for people with substance use disorders must continue during times of physical distancing, quarantine, 'lockdown'

¹³ WHO Guidelines for the management of sexually transmitted infections. Geneva: World Health Organization, 2004.
<https://www.who.int/hiv/pub/sti/pub6/en/>

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

and health service disruptions. This is particularly crucial for those receiving Opioid Agonists Maintenance Treatment (OAMT) with methadone or buprenorphine. Take-home doses of medications can be introduced and provided for longer periods. Clients should be properly informed about the changes in the practice and receive appropriate support in case of uncertainty and concerns. Access to medicines should be arranged for patients who are not eligible for take-home medication, those who live in long-term institutions, and for those in prisons or hospitalized for in-patient treatment or rehabilitation. In cases where a client with opioid use disorder receiving OAMT is quarantined at home or self-isolating with suspected COVID-19, it is important to ensure he/she has uninterrupted access to medicines. Methadone or buprenorphine should either be provided for the whole duration of isolation as take-home medication or delivered periodically to the client's home by a nurse, doctor, or local pharmacy employee (a "doorstep" delivery) with proper consideration of staff safety and potential of diversion. Psychosocial support can be provided to those in isolation via web-based services or phones.

- **Use of proactive planning, procurement and supply management.** Appropriate planning and monitoring are needed to ensure procurement and supply of antiretrovirals (ARVs) and hepatitis medicines as well as diagnostics and prevention commodities to meet ongoing needs.
- **Maintaining systems and database for monitoring and evaluation of patients,** including a register of patients awaiting viral load, treatment assessment, or monitoring of HIV and HBV viral suppression, or HCV cure with a plan for how they will be reached in future.

6. Antiretrovirals and COVID-19

Can antiretrovirals be used to treat COVID-19?

Several studies have suggested that patients infected with SARS-CoV-2, the virus causing COVID-19, and the related coronavirus infections (SARS-CoV and MERS-CoV) usually had good clinical outcomes with almost all cases recovering fully. In some cases, patients were given an antiretroviral drug, lopinavir boosted with ritonavir (LPV/r). These studies were mostly carried out in HIV-negative individuals.

It is important to note that these studies using LPV/r had limitations. The studies were small; timing, duration and dosing for treatment were varied; and most patients received co-interventions/co-treatments that may have contributed to the reported outcomes.

While the evidence of benefit of using ARVs to treat coronavirus infections is of very low certainty, serious side effects were rare. Among PLHIV, the routine use of LPV/r as treatment for HIV is associated with several side effects of moderate severity. However, as the duration of treatment in patients with coronavirus

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

infections was generally limited to a few weeks, these occurrences can be expected to be infrequent or less than that reported from routine use.

Can antiretrovirals be used to prevent SARS-CoV-2 infection?

Two studies have reported the use of LPV/r as post-exposure prophylaxis for SARS-CoV and MERS-CoV. One of these studies suggested that the occurrence of MERS-CoV infection was lower among health workers receiving LPV/r compared to those who did not receive any drugs; the other study found no cases of SARS-CoV infection among 19 PLHIV hospitalized in the same ward with SARS patients, of whom 11 were on ART. Again, the certainty of the evidence is very low due to small sample size, variability in drugs provided, and uncertainty regarding intensity of exposure.

What studies on treatment and prevention of COVID-19 with antiretrovirals are being planned?

Several randomized trials are planned to assess the safety and efficacy of using antiretroviral drugs — mainly LPV/r—for treating COVID-19, in combination with other drugs. Results are expected from mid-2020 onwards.

What are the major drug interactions between antiretrovirals and current experimental therapies for COVID-19?

ATV/r and LPV/r may increase concentrations of chloroquine or hydroxychloroquine, but to a moderate extent. Since LPV/r and chloroquine or hydroxychloroquine can cause QT prolongation, ECG monitoring is recommended when co-administering these agents. Detailed information and recommendations for drug interactions of ARVs and other medicines with experimental COVID-19 therapies are available at <https://www.covid19-druginteractions.org/>.

What is WHO's position on the use of antiretrovirals for the treatment of COVID-19?

Currently, there is insufficient data to assess the effectiveness of LPV/r or other ARVs for treating COVID-19.¹⁴ Several countries are evaluating the use of LPV/r and other ARVs and we welcome the results of these investigations. Again, as part of WHO's response to the outbreak, the WHO R&D Blueprint¹⁵ has been activated to accelerate evaluation of diagnostics, vaccines and therapeutics for this novel coronavirus. WHO has also designed a set of procedures to assess the performance, quality and safety of medical technologies during emergency situations.

¹⁴ Ford N, Vitoria M, Rangaraj A, Norris SL, Calmy A, Doherty M. Systematic review of the efficacy of antiretroviral drugs against SARS, MERS or COVID-19: initial assessment. *J Int AIDS Soc*, 2020; 23:e25489.

<https://onlinelibrary.wiley.com/doi/pdf/10.1002/jia2.25489>

¹⁵ R&D Blueprint and COVID-19. Geneva: World Health Organization, 2020. <https://www.who.int/blueprint/priority-diseases/key-action/novel-coronavirus/en/>

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

If countries use antiretrovirals for COVID-19, are there concerns about treatment shortages for people living with HIV?

Antiretrovirals are an efficacious and highly tolerable treatment for PLHIV. The ARV LPV/r is currently being investigated as a possible treatment for COVID-19. If they are to be used for the treatment of COVID-19, a plan should be in place to ensure there is adequate and continuous supply to cover the needs of all PLHIV already using LPV/r and those who will need to begin treatment. However, a relatively small proportion of PLHIV are on regimens which include LPV/r, since it is recommended as an alternative second-line option according to WHO's HIV treatment guidelines. Any country that allows the use of HIV medicines for the treatment of COVID-19 must ensure that an adequate and sustainable supply is in place.

Should countries modify their drug optimization efforts for infants and children?

Due to the current COVID-19 epidemic, the timelines for approval and introduction of new paediatric ARV products are increasingly uncertain, so it is critical that programs not wait to use optimal regimens containing LPV/r or dolutegravir (DTG) that are available now.¹⁶ This ensures infants and children will be on the most effective regimens to restore immune function. Guidance should be developed at the country level based on current guidelines and available stocks of paediatric ARVs. Key aspects to consider include:

- For patients on NNRTI-containing regimens who have suspected failure, immediately switch them to an LPV/r or DTG-containing regimen with an appropriate NRTI backbone without waiting for viral load results. (If failing on ABC/3TC switch to AZT/3TC, if failing on AZT/3TC switch to ABC or TDF depending on weight of the child).
- For children who are on AZT/3TC/NVP, continue this regimen ONLY if viral suppression has been documented within the past six months and stocks of AT/3TC/NVP are available. Otherwise immediately switch them to ABC/3TC/LPV/r if <20 kg and ABC/3TC/DTG if 20-30 kg. Adolescents weighing 30 kg or more should be on TLD.
- For children <20 kg who are clinically stable on an EFV-based regimen, they may remain on their current regimen until they reach 20 kg and can transition to DTG 50 mg.
- For patients receiving new regimens or ARV formulations, follow-up via phone should be conducted within four weeks of visit and caregivers should be provided with printed administration instructions to follow at home.

¹⁶ Update of recommendations on first- and second-line antiretroviral regimens. Geneva: World Health Organization, 2019. https://urldefense.proofpoint.com/v2/url?u=https-3A_apps.who.int_iris_bitstream_handle_10665_325892_WHO-2DCDS-2DHIV-2D19.15-2Deng.pdf&d=DwMFAg&c=G2MiLl7SXE3PeSnG8W6_JBU6FcdVjSsBSbw6gcROU&r=-Lj7BjahwJSmFqLaTq8nNf06fSKihzZLZMQBEBKtMw&m=ZplyWirNi_5FX2p3D6uplu9ILPOMqqMbZrWssUdKroy&s=TbrGIYUW74teowl9t3clN2bmaBd0Bbl3QH62MN8QJXs&e=

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

- Rapidly quantify stock available at the national, district and facility level and determine how many months of paediatric ARVs may be dispensed to patients to reduce the number of facility visits needed.
- If sufficient stocks of paediatric ARVs are available the following dispensing schedules may be used:
 - Three months of ARVs should be dispensed to all current patients below 20 kg.
 - Six months of ARVs should be dispensed to all patients weighing 20 kg or more.
- For younger children under three years who are at the upper end of a weight band at the time of evaluation, health-care workers should estimate if they may require a dose adjustment before their next visit and prescribe accordingly with clear instructions of when to increase the dose. Phone follow-up may be conducted with the caregiver at the time of planned dose adjustment as a reminder.
- If stocks of paediatric ARVs are not sufficient to allow for at least three months dispensing, facilities should plan to utilize or scale-up use of Community Adherence Groups (CAGs) to simultaneously deliver ARVs for caregivers and their children at the community or household level to minimize the number of people coming to the facility. All community-based dispensing practices should be implemented with adherence to physical distancing measures and other country-specific infection control recommendations.
- Caregivers should be encouraged to follow up via phone or SMS if they experience challenges in administration or need to refill a prescription, and they should be advised only return to the facility if they or their child becomes seriously ill.
- Ensure health-care workers have working mobile phones and sufficient airtime, and that they know standard operating procedures (SOP).

7. Diagnostics and COVID-19

Should countries aim to support COVID-19 testing using molecular diagnostic technologies and existing networks already in place for other diseases?

As of April 6, 2020, three SARS-CoV-2 in vitro diagnostic assays for molecular diagnostic platforms commonly used in resource-limited settings for HIV, hepatitis, STI, and/or TB testing have received emergency use authorization (EUA) from the United States' Food and Drug Administration (FDA). One of these assays received emergency use listing (EUL) by the WHO prequalification team on April 3, 2020, and two are currently undergoing evaluation. Under the leadership and guidance of the in-country emergency preparedness programme, the WHO encourages collaboration and integration of currently existing HIV, hepatitis, STI and TB molecular diagnostic assays to support the COVID-19 preparedness response. Furthermore, overall diagnostic systems, including human resources and specimen transportation networks, already in place may be able to be used to support SARS-CoV-2 diagnosis and surveillance.

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

Will low- and middle-income countries have access to COVID-19 tests on these already existing automated platforms?

WHO is working with partners and manufacturers to coordinate testing requests and procurement, including generating an allocation plan. However, several challenges may exist that result in delayed access, including exportation restrictions and high demand volumes. Countries may want to plan for a multi-pronged testing approach that includes both automated and manual testing to ensure that testing needs and demands can be met for COVID-19, while also being maintained for other critical high burden diseases.

How should countries consider prioritizing COVID-19 testing with other diseases, such as HIV and TB?

As countries consider integration of existing molecular platforms for COVID-19 testing, it will be critical to maintain current and essential molecular diagnostic needs, particularly for prioritized populations. While additional automated platforms may be needed to meet overall testing needs, in the case of limited resources a test prioritization may need to be defined by each country, considering their specific disease burdens and national plans. A clear national prioritization SOP may be helpful to support laboratories and health-care workers. In countries with high HIV and TB burdens some consideration and prioritization on currently available automated platforms should likely be made for the following tests:

- early infant diagnosis (HIV testing for infants and children under 18 months of age)—in generalized epidemics with mother-to-child transmission;
- TB testing—following biosafety needs for sputum samples within the COVID-19 epidemic, please see link below;
- HIV viral load testing for people living with advanced HIV disease and those suspected of failing treatment (non-suppressed), including pregnant and breastfeeding women;
- HIV viral load testing for infants, children, and adolescents.

While it is still necessary and critical to conduct HIV viral load testing for PLHIV who are stable on treatment and virally suppressed as well as for diagnosis or test of cure for those suspected of or with hepatitis C infection as well as diagnosis of other viral or bacterial infections, these tests could be considered for other existing molecular diagnostic technologies in-country that do not have SARS-CoV-2 testing capabilities or approvals.

What biosafety issues should be considered for COVID-19 when using currently available platforms?

As with all diseases, proper infection control should be followed and testing for suspected cases should be performed in appropriately equipped laboratories by staff trained in the relevant technical and safety procedures. Given the risk of transmission of the SARS-CoV-2 virus through specimens and surfaces it is

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

suggested that testing for COVID-19 be done in laboratory environments meeting adequate containment standards (i.e., BSL-2 or equivalent facilities with access to biosafety cabinets and personal protective equipment etc.). These requirements may limit testing at or near the point-of-care with nasopharyngeal specimens. Please see additional biosafety guidance, including for specimen transport, below.

Should serology tests, including rapid diagnostic tests (RDTs) be considered to screen or diagnose people suspected of having COVID-19?

Currently, WHO does not recommend the use of serology RDTs to screen or diagnose COVID-19 infection. More information and data are necessary; however, antibody-based tests cannot distinguish between current/active and past infection. Furthermore, the performance of antibody-based tests is unknown yet expected that false negatives may arise during the acute phase of infection. However, serology RDTs can be used for research purposes or to support surveillance activities.

Where can I find additional information and guidance on laboratory testing for COVID-19?

Please see the below links to additional laboratory and specimen transport guidance from WHO:

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/laboratory-guidance>

[https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-\(covid-19\)](https://www.who.int/publications-detail/laboratory-biosafety-guidance-related-to-coronavirus-disease-2019-(covid-19))

Please see this link for updated information on emergency use listing by WHO prequalification:

https://www.who.int/diagnostics_laboratory/EUL/en/

Please see this link for updated information on how to handle TB detection among presumptive TB patients potentially infected with COVID-19:

https://www.who.int/tb/COVID_19considerations_tuberculosis_services.pdf

8. Human rights, stigma and discrimination

How do we ensure human rights and avoid stigma and discrimination against people with COVID-19?

As the world scales up public health responses to the COVID-19 pandemic, countries are being urged to take decisive action to control the epidemic. WHO has urged all countries to ensure an appropriate balance between protecting health, preventing economic and social disruption, and respecting human rights. WHO is working with partners including the UNAIDS Joint Programme and the Global Network of People Living with HIV to ensure that human rights are not eroded in the response to COVID-19 and to ensure that people living with or affected by HIV are offered the same access to services as others and to ensure HIV-related services continue without disruption.

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

WHO has worked with UNAIDS¹⁷ to identify key areas of focus to help address stigma and discrimination and protect human rights including:

- Engage affected communities from the beginning in all response measures—to build trust, ensure suitability and effectiveness, and to avoid indirect or unintended harms and ensure the frequent sharing of information.
- Combat all forms of stigma and discrimination, including those based on ethnicity, social status, and profession including health workers, and those directed towards marginalized groups that prevent them from accessing care.
- Ensure access to free or affordable screening, testing and care for the most vulnerable and hard to reach.
- Remove barriers to people protecting their own health and that of their communities: fear of unemployment, healthcare costs, presence of fake news/misinformation, lack of sanitation infrastructure and so forth.
- Ensure that restrictions to protect public health are of limited duration, proportionate, necessary and evidence-based; support and protect health workers.

The HIV community has considerable experience in responding to stigma and discrimination and can ensure that the tools, skills and experiences developed over the last 30 years are applied to the response to COVID-19. Health-related stigma and discrimination often interacts with other forms of stigma and discrimination related to various social identities including social status, ethnicity, sexual orientation and gender identity. In an outbreak like COVID-19, this may mean people are labelled, stereotyped, discriminated against, treated separately, and/or experience loss of status because of a perceived link with a disease. For people who are also living with or associated with HIV this can result in intersecting stigma and discrimination. The current COVID-19 outbreak has provoked social stigma and discriminatory behaviours against people of certain ethnic backgrounds as well as anyone perceived to have been in contact with the virus.¹⁸

What measures should be undertaken in prisons and closed settings?

To mitigate potential outbreaks of COVID-19 and reduce morbidity and mortality among people in prisons and other closed settings, such as immigration detention centers, it is crucial that these facilities are embedded within the broader public health response. This requires close collaboration between health and justice ministries and protocols for entry screening, personal protection measures, physical distancing, environmental cleaning and disinfection, and restriction of movement, including limitation of transfers and

¹⁷ Rights in the time of COVID-19: Lessons from HIV for an effective, community-led response. UNAIDS, 2020.

https://www.unaids.org/sites/default/files/media_asset/human-rights-and-covid-19_en.pdf

¹⁸ Social stigma associated with COVID-19. IFRC, UNICEF, World Health Organization, 2020. <https://www.who.int/docs/default-source/coronaviruse/covid19-stigma-guide.pdf>

Q&A on HIV and viral hepatitis and COVID-19

WHO Global HIV, Hepatitis and STI Programmes

Version 2, as of 22 May 2020

access for non-essential staff and visitors. In the current context, it is of critical importance that countries work toward developing non-custodial strategies in order to prevent overcrowding in closed settings.¹⁹ Governance of prison health by a ministry of health, rather than a ministry of justice or similar, is likely to facilitate this.²⁰

9. COVID-19 and clinical research

What is WHO's position on use of corticosteroids for the treatment of COVID-19?

The current interim guidance from WHO on clinical management of severe acute respiratory infection when COVID-19 infection is suspected advises against the use of corticosteroids unless indicated for another reason.²¹

This guidance is based on several systematic reviews that cite lack of effectiveness and possible harm from routine treatment with corticosteroids for viral pneumonia or acute respiratory distress syndrome.²²

10. COVID-19 surveillance and digital health information systems

How is WHO COVID-19 surveillance addressing HIV and being supported by digital tools?

The WHO COVID-19 [case-based reporting form](#) includes HIV as an underlying condition and comorbidity. Currently ART status is not collected, and HIV status is not included in aggregate reporting, as seen in this [line list for case-based reporting](#), but this may be adapted at country level as appropriate.

Several open-source digital tools have been developed for use in COVID-19 surveillance, either based on adaptation of existing surveillance platforms, e.g. e-IDSR, or new implementation of:

- Go Data: <https://www.who.int/godata>
- SORMAS: <https://sormasorg.helmholtz-hzi.de/>
- DHIS2: <https://www.dhis2.org/covid-19>

¹⁹ Effectiveness of interventions to address HIV in prisons. Geneva: World Health Organization, 2007 (Evidence for Action Technical Papers). https://www.who.int/hiv/pub/prisons/e4a_prisons/en/

²⁰ Kinner S, Young JT, Snow K, Southalan L, Lopez-Acuña D, Ferreira-Borges C et al. Prisons and custodial settings are part of a comprehensive response to COVID-19. *The Lancet Public Health*. Published: March 17, 2020; DOI: [https://doi.org/10.1016/S2468-2667\(20\)30058-X](https://doi.org/10.1016/S2468-2667(20)30058-X).

²¹ Clinical management of severe acute respiratory infection when novel coronavirus infection is suspected. Geneva: World Health Organization, 2020. [www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-\(ncov\)-infection-is-suspected](http://www.who.int/publications-detail/clinical-management-of-severe-acute-respiratory-infection-when-novel-coronavirus-(ncov)-infection-is-suspected)

²² Russell C, Millar J, Baillie JK. Clinical evidence does not support corticosteroid treatment for 2019-nCoV lung injury, 2020. www.thelancet.com/pb-assets/Lancet/pdfs/coronavirus/S0140673620303172.pdf