



Current recommendations for the discharge of COVID-19 patients from hospital and ICU: a rapid review

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In response to the rapidly evolving situation caused by the COVID-19 pandemic and following a specific request from Dr Paul Bachoo, Medical Director Acute Sector NHS Grampian, we conducted a rapid review of existing guidance documents and reports from national and international organisations and relevant articles published in the literature on hospital discharge criteria and services requirements for COVID-19 patients.

We conducted a literature search in Ovid MEDLINE, Ovid Embase, PubMed, and Scopus on 11 April 2020. Text terms were chosen to identify disease (based on a database expert search), discharge/disposition, and destination (ward, step-down/intermediate care, community, or home). The results were not limited by study type or language, although mainly English language results were selected for full text assessment. After de-duplication, results were retained if they contained data on the disposition of patients or contained protocols or guidance on discharge criteria. The electronic database searches were supplemented by a Google search and searches of the websites of relevant national and international organisations. Health libraries supporting the NHS were also canvassed for local protocols. Among the identified sources of information, we have selected those that provide most recent and relevant recommendations and data. Due to the time constraints in the preparation of this rapid review, we did not formally assess the methodological quality or validate the identified evidence; although most are from trustable sources (e.g., governmental organisations, professional bodies).

This report includes the following sections:

- Criteria for discharging COVID-19 patients and ending transmission
- Hospital Discharge Service Requirements
- Recommendations for the admission of patients with COVID-19 to Critical Care
- Optimisation of health resources
- Recent published data on hospital discharge, mortality, and time from onset of symptoms to admission to ICU and from admission to death.
- Additional relevant sources of information as of April 12, 2020

Criteria for discharging COVID-19 patients and ending transmission

The technical report from the [European Centre for Disease Prevention and Control \(ECDC\)](#) on Discharge Criteria for confirmed COVID-19 cases provides an overview of criteria for the de-isolation of COVID-19 patients from national bodies in countries that have experienced local transmission of SARS-CoV-2. (<https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-Discharge-criteria.pdf>) Despite some differences in clinical practice across countries, and the fact that guidance documents and protocols are adapted by local health authorities to respond to rapidly changing local circumstances, the ECDC technical report indicates that there is consensus regarding the need to combine a) the evidence for viral RNA clearance from the upper respiratory tract with b) the clinical resolution of symptoms:

- At least two upper respiratory tract samples testing negative for SARS-CoV-2, collected at \geq 24-hour intervals are recommended to document SARS-CoV-2 clearance.
- For symptomatic patients after the resolution of symptoms, samples should be collected at least seven days after the onset or after 3 days without fever.
- For asymptomatic SARS-CoV-2-infected persons, the tests to document virus clearance should be taken at a minimum of 14 days after the initial positive test.
- Evidence from Italy indicates that serology tests to document IgG antibody specific to SARS-CoV-2 will be of value.

Apart from the ECDC, we identified a number of recommendations for discharging COVID-19 patients (from hospital and from ICU) and for the discontinuation of the transmission from various national organisations and authorities across the globe. These are summarised in Table 1 below.

Table 1. Overview of criteria and recommendations for discharging COVID-19 patients and for discontinuation of transmission across countries

Country	COVID-19 case definition	Criteria and Recommendations	Date	Reference
Scotland	Hospitalised patients with suspected or confirmed COVID-19	<p><u>Discharge criteria</u> Patients may be considered for removal from isolation if:</p> <ul style="list-style-type: none"> ○ Has already been at home or in isolation for 7 days since onset of symptoms, and ○ Has been afebrile for 48 hours, and ○ Symptoms are resolving or resolved (excluding cough), and ○ Had two negative COVID-19 PCR combined throat/nose swab results 24 hours apart with the first repeat sample at least 7 days after the first positive test 	03 April 2020	<p>Scottish Government Clinical Guidance. <i>COVID19 Guidance: Clinical Advice</i> Version number: 2.3 https://www.gov.scot/binaries/content/documents/govscot/publications/advice-and-guidance/2020/04/coronavirus-covid-19-clinical-advice/documents/covid-19-cmo-clinical-advice-3-april-2020/covid-19-cmo-clinical-advice-3-april-2020/govscot%3Adocument/COVID-19%2BCMO%2Bclinical%2B advice%2B-%2Bv2.3%2B-%2B3%2BApril%2B2020.pdf</p>
	Patients who have had contact with other COVID-19 patients in hospital and are not displaying symptoms, and who are to be transferred to social or community care	<p><u>Recommendation for transferring patients to community care</u> Secondary care staff must inform the receiving facility of the exposure. The receiving facility should ensure the exposed individual is isolated for 14 days following exposure to minimise the risk of a subsequent outbreak within the receiving facility.</p> <p>Individuals being discharged from hospital do not routinely need confirmation of a negative COVID-19 test. Facilities will be advised of recommended infection prevention and control measures on discharge.</p>	02 April 2020	<p>Health Protection Scotland <i>COVID-19: information and guidance for social or community care and residential settings (version 1.6)</i> https://www.hps.scot.nhs.uk/web-resources-container/covid-19-information-and-guidance-for-social-or-community-care-and-residential-settings/</p>
England	Hospitalised patients with COVID-19	<p><u>Discharge criteria</u> After 14 days following a positive SARS-CoV-2 test, infection prevention and control measures can be stopped if there is:</p> <ul style="list-style-type: none"> ○ Clinical improvement (with at least some respiratory recovery) ○ Absence of fever (> 37.8°C) for 48 hours ○ No underlying severe immunosuppression 	9 April 2020	<p>Public Health England <i>Guidance for stepdown of infection control precautions within hospitals and discharging COVID-19 patients from hospital to home settings</i> https://www.gov.uk/government/publications/covid-19-guidance-for-stepdown-of-infection-control-</p>

		<p>If testing for viral clearance is available, it should focus on: the severely immunocompromised patients to support the optimal use of side rooms, or where side rooms are not available; any testing that optimises patient flow through the hospital, such as: long-stay patients who are unable to otherwise be discharged; those being discharged to a household where an extremely vulnerable person is being shielded.</p> <p><i>Post-discharge advice</i> <i>Patient must have first been assessed as having stable health status and any ongoing care needs can be met at home or a care facility</i> <u><i>If discharging to own home:</i></u></p> <ul style="list-style-type: none"> • Patients should follow the Public Health England Stay at Home guidance for households with COVID-19 patients. • Give patients clear safety-netting advice for what to do if symptoms worsen • Those who did not require critical care/are not immunosuppressed should self-isolate until 7 days from their first positive test. Those requiring critical care or are severely immunosuppressed should complete self-isolation until 14 days from their first positive test. • All discharged patients should self-isolate until their fever has resolved for 48 hours consecutively without medication to reduce fever (unless otherwise instructed by their acute care provider). Note that persistent cough is not an indication of ongoing infection when other symptoms have resolved. <p><u><i>If discharging to a shared household:</i></u></p> <ul style="list-style-type: none"> • Other household members should complete their 14-day stay at home period. • If this did not start before the patient was admitted to hospital, it should start from the day the patient returns to the household, unless the patient has completed their appropriate period of isolation within the hospital • Ensure the patient is advised on strict infection prevention and control measures if there are any vulnerable individuals staying in the household who are not currently infected • It is highly advised that patients are discharged to a different home if there are any extremely vulnerable individuals living in their household until the patients have finished their self-isolation period or have laboratory confirmation of viral clearance. 		<p>precautions-within-hospitals-and-discharging-covid-19-patients-from-hospital-to-home-settings</p> <p>Public Health England <i>COVID-19: investigation and initial clinical management of possible cases (section 3.4 Discharge of patients)</i> https://www.gov.uk/government/publications/wuhan-novel-coronavirus-initial-investigation-of-possible-cases/investigation-and-initial-clinical-management-of-possible-cases-of-wuhan-novel-coronavirus-wncov-infection#action-to-take-if-inpatient-definition-is-met</p> <p>Public Health England <i>Stay at home: guidance for households with possible coronavirus (COVID-19) infection (updated 9 April 2020)</i> https://www.gov.uk/government/publications/covid-19-stay-at-home-guidance/stay-at-home-guidance-for-households-with-possible-coronavirus-covid-19-infection</p> <p>Department of Health & Social Care, Public Health England <i>Admission and Care of Residents during COVID-19 Incident in a Care Home Version 1 (published 2 April 2020)</i> https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878099/Admission_and_Care_of_Residents_during_COVID-19_Incident_in_a_Care_Home.pdf</p>
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China	Symptomatic hospitalised patients with COVID-19	<p><u>Discharge criteria</u></p> <ul style="list-style-type: none"> Afebrile for >3 days, Improved respiratory symptoms, Pulmonary imaging shows obvious absorption of inflammation, and Nucleic acid tests negative for respiratory tract pathogen twice consecutively (sampling interval \geq 24 hours). <p><u>Post-discharge advice</u></p> <p>Patients are recommended to continue 14 days of isolation management and health monitoring, wear a mask, live in a single room with good ventilation, reduce close contact with family members, eat separately, keep hands clean and avoid outdoor activities. It is recommended that discharged patients should have follow-up visits after 2 and 4 weeks.</p>	6 February 2020	<p>European Centre for Disease Prevention and Control <i>Technical Report Discharge Criteria for confirmed COVID-19 cases - When is it safe to discharge COVID-19 cases from the hospital or end home isolation?</i> https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-Discharge-criteria.pdf</p> <p>China CDC <i>Diagnosis and Treatment Protocol for COVID-19 (Trial Version 7) issued by the General Office of the National Health Commission and the Office of the National Administration of Traditional Chinese Medicine</i> http://www.chinacdc.cn/en/COVID19/202002/P020200310326208577015.pdf</p>
	Severe cases (ICU patients) with COVID-19	<p><u>Discharge criteria</u></p> <p>Standards of transfer out of ICU</p> <ul style="list-style-type: none"> Patients do not need advanced respiratory support (HFNO, NIV, MV, ECLS, etc.) Stable hemodynamic and tissue perfusion. No significant impairment of organ function; and no need for organ support treatment (CRRT, artificial liver, etc.). 	6 February 2020	<p>Jin et al. <i>A rapid advice guideline for the diagnosis and treatment of 2019 novel coronavirus (2019-nCoV) infected pneumonia (standard version)</i> https://mmrjournal.biomedcentral.com/track/pdf/10.1186/s40779-020-0233-6</p>
Singapore	Symptomatic hospitalised patients with COVID-19	<p><u>Discharge criteria</u></p> <ul style="list-style-type: none"> Afebrile (temperature $<38^{\circ}\text{C}$) \geq 24 hours, and 2 respiratory samples tested negative for SARS-CoV-2 by PCR in \geq 24 hours, and Days of illness from onset \geq 6 days, and Alternative aetiology found (e.g. Influenza, bacteraemia), and Not a close contact of a confirmed COVID-19 case, and Does not require in-patient care for other reasons <p><u>Post-discharge advice</u></p>	26 February 2020	<p>European Centre for Disease Prevention and Control <i>Technical Report Discharge Criteria for confirmed COVID-19 cases - When is it safe to discharge COVID-19 cases from the hospital or end home isolation?</i> https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-Discharge-criteria.pdf</p> <p>Jun-Yang et al. <i>De-isolating Coronavirus Disease 2019 Suspected Cases: A Continuing Challenge</i> https://academic.oup.com/cid/advance-article/doi/10.1093/cid/ciaa179/5758073</p>

		Discharge patient with advisory and clinic follow-up if indicated and with daily wellness calls until day 14 after last possible exposure, under the following conditions		
Italy	Symptomatic hospitalised patients with COVID-19	<p><u>Discharge criteria</u> COVID-19 patients can be considered cured after:</p> <ul style="list-style-type: none"> ○ Resolution of symptoms, and ○ 2 negative tests for SARS-CoV-2 at 24-hour intervals. <p>For patients who clinically recover earlier than 7 days after onset, an interval of 7 days between the first and the final test is advised. <i>Note:</i> Virus clearance is defined as viral RNA disappearance from bodily fluids of symptomatic and asymptomatic persons, accompanied by appearance of specific IgG</p>	10 March 2020	<p>European Centre for Disease Prevention and Control <i>Technical Report Discharge Criteria for confirmed COVID-19 cases - When is it safe to discharge COVID-19 cases from the hospital or end home isolation?</i> https://www.ecdc.europa.eu/sites/default/files/documents/COVID-19-Discharge-criteria.pdf</p> <p>Ministero della Salute, Consiglio Superiore di Sanità, Italy (28 February 2020). <i>Quesiti scientifici relativi all'infezione da Coronavirus SARS-CoV-2</i> http://www.trovanorme.salute.gov.it/norme/renderNormsanPdf?anno=2020&codLeg=73458&parte=1%20&serie=null</p>
	Asymptomatic patients with COVID-19 (isolated at home)	<p><u>Criteria for discontinuation of transmission</u></p> <ul style="list-style-type: none"> ○ Negative SARS-cov-2 RNA test at 14 days after the first test (end of the quarantine period). 		
Spain	Severe cases (ICU patients) with COVID-19	<p><u>Discharge criteria (ICU patients)</u> Constant monitoring (every 8 hours or at least daily surveillance) until stability is reached. Stability will be defined with the following criteria:</p> <ul style="list-style-type: none"> ○ Heart rate <100 bpm ○ Respiratory rate <24 RPM ○ Axillary temperature <37.2°C ○ SaO2 > 90% (if there was no previous respiratory failure) ○ Adequate conscience level <p><i>Assessment of response:</i> The adequate response to treatment involves achieving clinical stability 3-4 days after antibiotic treatment and is assessed using the criteria detailed above. <i>Analytical samples repetition according to clinical judgment:</i> to be considered every 24-48h <i>Follow-up chest radiograph:</i> will be indicated if there is a lack of clinical response and/or suspected deterioration</p>	19 March 2020	<p>Health Ministry from Spain <i>Technical document Clinical management of COVID-19: intensive care units (Section 4.2).</i> https://www.mscbs.gob.es/profesionales/saludPublica/ccayes/alertasActual/nCov-China/documentos/Protocolo_manejo_clinico_uci_COVID-19.pdf</p>

Germany	Hospitalised patients with COVID-19	<p><u>Discharge criteria</u> After clinical improvement (clinical improvement not defined):</p> <ul style="list-style-type: none"> • Complete dismissal without further conditions: <ul style="list-style-type: none"> ○ Free of symptoms for at least 48 hours in relation to the acute COVID-19 disease ○ 2 negative SARS-CoV-2 PCR tests at intervals of 24 hours <p>OR</p> <ul style="list-style-type: none"> • To home isolation <p><u>Post-discharge advice</u> Outpatient follow-up care based on a medical case-by-case assessment.</p>	8 April 2020	<p>Robert Koch Institut. <i>COVID-19: Criteria for discharge from the hospital or from home isolation</i> https://www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Entlassmanagement.html</p>
	Non-hospitalised patients with COVID-19	<p><u>Criteria for discontinuation of transmission</u></p> <ul style="list-style-type: none"> • Without previous hospitalization (mild course of the disease): <ul style="list-style-type: none"> ○ At the earliest 14 days after the onset of symptoms ○ Freedom from symptoms for at least 48 hours in relation to the acute COVID-19 disease (after consultation with medical care) <p>OR</p> <ul style="list-style-type: none"> • After previous hospitalization (due to a severe course of the disease): <ul style="list-style-type: none"> ○ At the earliest 14 days after discharge from the hospital ○ Free of symptoms for at least 48 hours related to the acute COVID-19 disease (after consultation with medical care) <p>Criteria can be adapted to individual cases after close consultation with the clinic, laboratory and health department - especially for high-risk people (e.g. elderly, immunosuppressed, chronically ill).</p>		
European Union	Hospitalised patients with COVID-19 (early stage of SARS-CoV-2 spread)	<p><u>Discharge criteria</u> In the early stage of SARS-CoV-2 spread and with no pressure on healthcare facilities and optimal laboratory testing capacity, patients may be discharged and moved to home care or other types of non-hospital care based on:</p> <ul style="list-style-type: none"> ○ Clinical criteria (e.g. no fever for > 3 days, improved respiratory symptoms, pulmonary imaging showing obvious absorption of inflammation, no hospital care needed for other pathology, clinician assessment) ○ Laboratory evidence of SARS-CoV-2 clearance in respiratory samples; 2 to 4 negative rRT-PCR tests for respiratory tract samples (nasopharynx and throat swabs with sampling interval \geq 24 hours). Testing at a minimum of 7 	10 Mar 2020	<p>European Centre for Disease Prevention and Control <i>Novel coronavirus (SARS-CoV-2) - Discharge criteria for confirmed COVID-19 cases</i> https://www.ecdc.europa.eu/en/publications-data/novel-coronavirus-sars-cov-2-discharge-criteria-confirmed-covid-19-cases</p>

		<p>days after the first positive rRT-PCR test is recommended for patients who recovered earlier than 7 days after onset</p> <ul style="list-style-type: none"> o Serology: appearance of specific IgG when an appropriate serological test is available. <p><u>Post-discharge advice</u></p> <p>14 days of further isolation with regular health monitoring (e.g., follow-up visits, phone calls) can be considered, provided the patient's home is equipped for patient isolation and the patient takes all necessary precautions (e.g., single room with good ventilation, face-mask wear, reduced close contact with family members, separate meals, good hand sanitation, no outdoor activities) in order to protect family members and the community from infection and further spread of SARS-CoV-2.</p>		
	Non-hospitalised patients with COVID-19	<p><u>Criteria for discontinuation of transmission</u></p> <ul style="list-style-type: none"> o These patients can end self-isolation eight days after the onset of symptoms, and o Resolution of fever, o Clinical improvement of other symptoms for at least for three days. <p>Caretakers of COVID-19 patients should self-quarantine for 14 days after last contact with sick spouse/relative. Caretakers or family members that develop symptoms in the 14-day quarantine period, should stay in home isolation for eight days after onset of symptoms and until resolution of fever for at least three days and clinical improvement of other symptoms, or seek medical care if symptoms worsen.</p>	08 April 2020	<p>European Centre for Disease Prevention and Control. Guidance for discharge and ending isolation in the context of widespread community transmission of COVID-19 – first update</p> <p>https://www.ecdc.europa.eu/en/publications-data/covid-19-guidance-discharge-and-ending-isolation</p>
USA	Hospitalised patients with COVID-19	<p><u>Discharge criteria</u></p> <ul style="list-style-type: none"> o Resolution of fever without the use of antipyretic medication o Improvement in respiratory symptoms o Negative results of COVID-19 molecular assay for detection of SARS-CoV-2 RNA from at least two consecutive nasopharyngeal swab specimens collected ≥24 hours apart (total of two negative specimens). <p><u>Post-discharge advice</u></p> <p><u>If discharged to home:</u></p> <ul style="list-style-type: none"> • Isolation should be maintained at home if the patient returns home before discontinuation of transmission-based precautions. • The decision to send the patient home should be made in consultation with the patient's clinical care team and local or state public health departments and 	23 March 2020	<p>Centres for Disease Control Prevention</p> <p><i>Discontinuation of Transmission-Based Precautions and Disposition of Patients with COVID-19 in Healthcare Settings (Interim Guidance)</i></p> <p>https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-hospitalized-patients.html</p> <p>Military Health System</p> <p><i>DoD COVID-19 practice management guide clinical management of covid-19</i></p> <p>http://www.med.umich.edu/surgery/mcccn/documents/DoD-COVID-19-Practice-Management-Guide-V10</p>

		<p>should include considerations of the home’s suitability and patient’s ability to adhere to home isolation recommendations.</p> <p><u><i>If discharged to a long-term care or assisted living facility and transmission-based precautions are still required:</i></u></p> <ul style="list-style-type: none"> • Patients should go to a facility with an ability to adhere to infection prevention and control recommendations for the care of COVID-19 patients. Preferably, the patient would be placed in a location designated to care for COVID-19 residents. <p><u><i>If discharged to a long-term care or assisted living facility and transmission-based precautions have been discontinued, but the patient has persistent symptoms from COVID-19:</i></u></p> <ul style="list-style-type: none"> • Patients should be placed in a single room, be restricted to their room, and wear a facemask during care activities until all symptoms are completely resolved or until 14 days after illness onset, whichever is longer. <p><u><i>If discharged to a long-term care or assisted living facility and transmission-based precautions have been discontinued and the patient’s symptoms have resolved:</i></u></p> <ul style="list-style-type: none"> • Patients do not require further restrictions, based upon their history of COVID-19. 		
	<p>Non-hospitalised patients with suspected COVID-19</p>	<p><u><i>Criteria for discontinuation of transmission</i></u></p> <ul style="list-style-type: none"> ○ Consider maintaining transmission-based precautions and performing a second test for SARS-CoV-2. ○ If a patient suspected of having COVID-19 is never tested, the decision to discontinue transmission-based precautions can be made based upon using the non-test-based strategy (described above). <p><u><i>If discharged to home:</i></u></p> <ul style="list-style-type: none"> • Isolation should be maintained at home if the patient returns home before discontinuation of transmission-based precautions. The decision to send the patient home should be made in consultation with the patient’s clinical care team and local or state public health departments. It should include considerations of the home’s suitability for and patient’s ability to adhere to home isolation recommendations. Guidance on implementing home care of persons who do not require hospitalization and the discontinuation of home isolation for persons with COVID-19 is available. <p><u><i>If discharged to a long-term care or assisted living facility and transmission-based precautions are still required:</i></u></p>		

	<ul style="list-style-type: none"> Patients should go to a facility with an ability to adhere to infection prevention and control recommendations for the care of COVID-19 patients. Preferably, the patient would be placed in a location designated to care for COVID-19 residents. <i>If discharged to a long-term care or assisted living facility and transmission-based precautions have been discontinued, but the patient has persistent symptoms from COVID-19:</i> Patients should be placed in a single room, be restricted to their room, and wear a facemask during care activities until all symptoms are completely resolved or until 14 days after illness onset, whichever is longer. <i>If discharged to a long-term care or assisted living facility and transmission-based precautions have been discontinued and the patient's symptoms have resolved:</i> Patients do not require further restrictions, based upon their history of COVID-19. 		
Symptomatic patients with COVID-19 that were directed to care for themselves at home	<p><u>Criteria for discontinuation of transmission</u></p> <p>May discontinue isolation under the following conditions:</p> <ul style="list-style-type: none"> At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications and Improvement in respiratory symptoms (e.g., cough, shortness of breath); and, At least 7 days have passed since symptoms first appeared. <p>Follow up test is advised.</p>		
Asymptomatic patients with COVID-19	<p><u>Criteria for discontinuation of transmission</u></p> <p>May discontinue isolation when:</p> <ul style="list-style-type: none"> At least 7 days have passed since the date of their first positive COVID-19 diagnostic test, and Have had no subsequent illness provided they remain asymptomatic, and For 3 days following discontinuation of isolation, these persons should continue to limit contact (stay 6 feet away from others). <p>Limit potential of dispersal of respiratory secretions by wearing a covering for their nose and mouth whenever they are in settings where other persons are present. In community settings, this covering may be a barrier mask, such as a bandana, scarf, or cloth mask. The covering does not refer to a medical mask or respirator.</p>	4 April 2020	<p>Centres for Disease Control Prevention <i>Discontinuation of Isolation for Persons with COVID-19 Not in Healthcare Settings (Interim Guidance)</i> https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html</p>

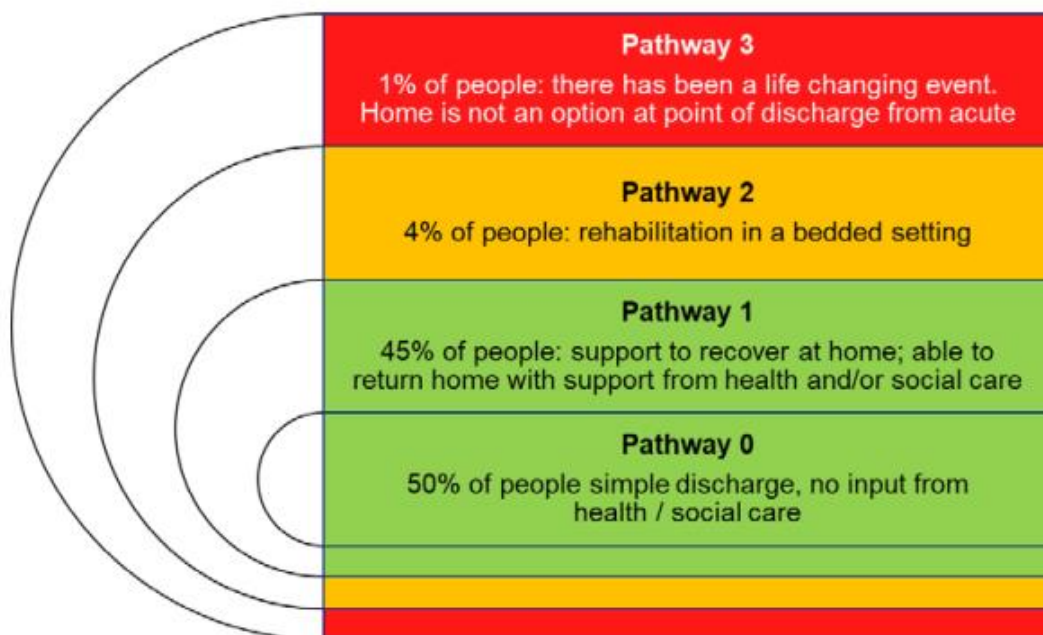
Canada	Patients with confirmed COVID-19	<u>Discharge recommendation:</u> The duration and discontinuation of precautions should be determined on a case-by-case basis, in consultation with the infection prevention and control program, and in accordance with provincial and territorial guidance.	24 February 2020	<p>Government of Canada <i>Infection prevention and control for coronavirus disease (COVID-19): Interim guidance for acute healthcare settings</i> https://www.canada.ca/en/public-health/services/diseases/2019-novel-coronavirus-infection/health-professionals/interim-guidance-acute-healthcare-settings.html#a4.16</p>
Brazil	Semi-critical patient with COVID-19 (not necessarily in ICU)	<u>Discharge criteria</u> <ul style="list-style-type: none"> ○ Afebrile for 72 hours ○ Saturation \geq 95% ambient air without supplemental O2 (Individualize criteria for chronic lung disease) ○ Respiratory rate \leq 24 RPM ○ Absence of worsening in chest CT (consider discharge without CT in case of unavailability of the exam) 	April 2020	<p>Hospital de Clínicas da UNICAMP <i>COVID-19 - Clinical Management of Semi-critical Patients (1st version)</i> https://www.hc.unicamp.br/sites/default/files/u/270/COVID-19_Manejo%20cl%C3%ADnico%20do%20paciente%20semi-cr%C3%ADtico.pdf</p>
Australia	Confirmed or probable cases if COVID-19	<u>Discharge criteria</u> If the case is ready clinically for hospital discharge but has not had two consecutive swabs taken at least 24 hours apart which are negative for SARS-CoV-02 by PCR, then: <ul style="list-style-type: none"> ○ Should be discharged to home isolation. ○ Advised to continue to be diligent to hand hygiene and cough etiquette and practice social distancing, as is indicated for the rest of the community, as this will assist in reducing transmission. 	3 April 2020	<p>Australian National COVID-19 Clinical Evidence Taskforce. <i>Management of patients with Moderate to severe COVID-19 disease</i> https://covid19evidence.net.au/wp-content/uploads/2020/04/NATIONAL-COVID-19_TASKFORCE_FLOW-CHART_1_MODERATE-SEVERE_V1.0_3.4.2020.pdf</p>
South Africa	Asymptomatic patients with COVID-19	<u>Criteria for discontinuation of transmission</u> May discontinue isolation: <ul style="list-style-type: none"> ○ 14 days after initial positive test 	27 March 2020	<p>Department of health of Republic of South Africa <i>Clinical Management of Suspected or Confirmed COVID-19 Disease</i> https://www.westerncape.gov.za/assets/department/health/FP/clinical_management_of_suspected_or_acute_covid-19_version_3_compressed.pdf</p>
	Hospitalised patients with COVID-19	<u>Discharge criteria</u> <ul style="list-style-type: none"> ● If it is a mid-case, 14 days after the onset of their symptoms or ● If it is a moderate-severe case or with a severe disease, patients need to achieve clinical stability defined as: <ul style="list-style-type: none"> ○ SpO2 \geq95% ○ Respiratory rate $<$25 ○ HR $<$120 ○ Temp 36-39°C ○ Mental status normal 		

		<p><u>Post-discharge advice</u></p> <p>Patients admitted to hospital can continue their isolation period at home once clinical stability has been achieved. If the patient is able to safely self-isolate: Separate bedroom available for patient to self-isolate. Also, patient able to contact, and return to, healthcare facility in case of deterioration.</p>		
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Hospital Discharge Service Requirements

In England, the COVID-19 Hospital Discharge Service Requirements detail the requirements for all NHS trusts, community hospitals and community health services around patients discharge and maintaining good decision-making (<https://www.gov.uk/government/publications/coronavirus-covid-19-hospital-discharge-service-requirements>). In particular, the document presents the discharge to assess model, which is reproduced below.

The Discharge to Assess Model



This model, based on best practice, assumes that:

- 95% of people can go straight home on discharge:
 - 50% can go home with minimal or no additional support (Pathway 0)
 - 45% can go home with a short or longer-term support care package (Pathway 1)
- 5% of people will require residential or nursing care setting:
 - 4% require rehabilitation support (Pathway 2)
 - 1% require nursing home care (Pathway 3)

The definitions of the three stages of the discharge to assess model are presented in Table 2 below.

Table 2. Definitions of the stages in the Discharge to Assess Model

<p>Stage one</p> <p>Review patients daily and identify patients for discharge to leave that day</p>	<ul style="list-style-type: none"> ✓ Clinically-led review of all patients at an early morning board round, any patient meeting the revised clinical criteria will be deemed suitable for discharge. ✓ At least twice daily review of all patients in acute beds to agree who is not required to be in hospital, and will therefore be discharged. ✓ All patients who are not required to be in hospital and are therefore suitable for discharge will be added to the discharge list and allocated to a discharge pathway. ✓ Discharge home should be the default pathway. ✓ The discharge list will be managed by the community provider with the lead responsibility for ensuring the Discharge Service Requirements are met – this provider will be the single coordinator.
<p>Stage two</p> <p>The details of how to discharge patients</p>	<p>On decision of discharge, the patient and their family or carer, and any formal supported housing workers should be informed and receive the relevant leaflet (see Annex K).</p> <p>Community health, social care and acute staff need to work in full synchronisation (and include housing professionals where necessary) to ensure patients are discharged on time.</p> <p>The delineation of responsibility to coordinate and manage the discharge arrangements are expected to be:</p> <ul style="list-style-type: none"> • Pathway 0 – acute discharge staff lead

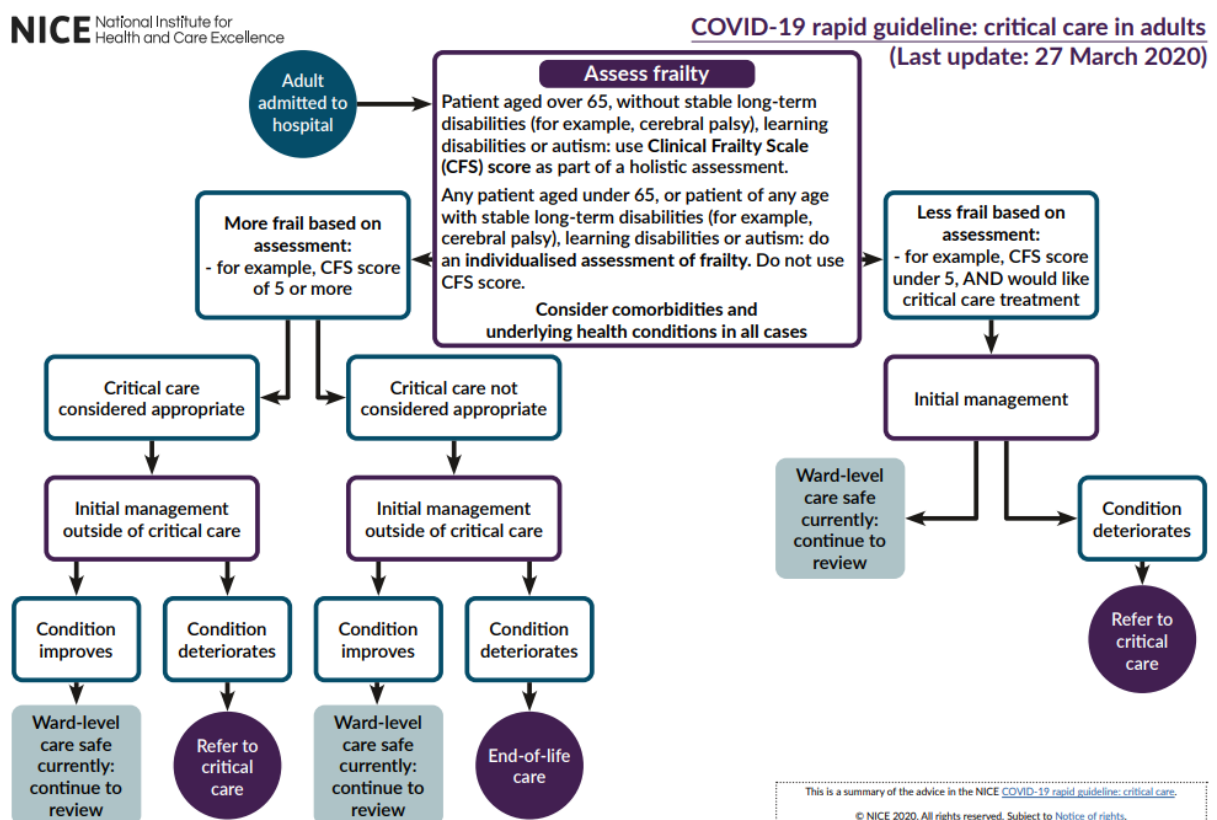
	<ul style="list-style-type: none"> • Pathways 1, 2 and 3 – community health staff lead. <p>On decision of discharge, all patients will be allocated a case manager by the single coordinator.</p> <p>All patients must be transferred to an allocated discharge area/lounge within one hour of decision to discharge.</p> <p>The case manager will be responsible for ensuring:</p> <ul style="list-style-type: none"> • Individuals and their families are fully informed of the next steps • Patient transport home is available, where needed • ‘Settle in’ support is provided where needed. <p>Senior clinical staff should be available to support staff with positive risk-taking and clinical advice.</p> <p>Where applicable to the patient, COVID-19 test results are included in documentation that accompanies the person on discharge.</p>
<p>Stage three</p> <p>Assessment and care planning at home</p>	<p>Post discharge, the single coordinator will need to ensure the staff and infrastructure is available to provide immediate care needs, review and assess for longer-term care packages or end support where it is no longer needed.</p> <p>The single coordinator should draw on all available local resources, including the voluntary and community sector and social care staff no longer undertaking assessment work in the acute units.</p> <p>Coordinated home assessments between health and social care, including equipment and reablement support, take place ideally on the same day of discharge, led by a trusted assessor.</p>

Source: HM Government /NHS COVID-19 Hospital Discharge Service Requirements

Recommendations for the admission of patients with COVID-19 to Critical Care

On 20 March 2020, **NICE published a rapid guideline on critical care** that presents recommendations for maximising the safety of patients with COVID-19 who need critical care and supporting healthcare professionals' decision making (<https://www.nice.org.uk/guidance/ng159>). The guidance was further updated on 9 April 2020. The guideline reports the critical care admission algorithm shown below and recommends the following:

- Base decisions on admission of individual adults to critical care on the likelihood of their recovery, taking into account the likelihood that a person will recover from their critical care admission to an outcome that is acceptable to them.
- Review critical care treatment regularly and when the patient's clinical condition changes. Include in the review an assessment of whether the goals of treatment are clinically realistic.
- For support with decision making, refer to the ethical guidance available from the British Medical Association, the Royal College of Physicians and the General Medical Council.
- Stop critical care treatment when it is no longer considered able to achieve the desired overall goals (outcomes). Record the decision and the discussion with family and carers, the patient (if possible) or an independent mental capacity advocate (if appropriate).



The **Swiss Society of Intensive Care Medicine** published the recommendations for the admission of patients with COVID-19 to intensive care and intermediate care units (ICUs and IMCUs) on 24 March 2020 (<https://smw.ch/article/doi/smw.2020.20227>). In particular, they state that individual patient characteristics, including frailty and comorbidities, should be taken into account to develop a patient management plan. A summary of the most relevant recommendations is presented below.

Self-sufficient patients, no additional oxygen administration required, no organ failure:

- Return home
- Medical check-up by the attending physician after 24–48 hours, depending on the condition

Patients requiring hospital care or oxygen administration, but without severity criteria:

- Hospitalisation on a ward, if possible defined as COVID-19 ward with usual supervision
- Oxygen administration via nasal cannula/probe, maximum 4 l/min, with intermittent monitoring of oxygen saturation and breathing frequency 3-4 times per day
- Periodic medical evaluation of the clinical course for a timely decision on further action (escalation versus return home)

Patients who require oxygen therapy and continuous monitoring of vital parameters (at least SpO₂, ideally blood pressure, heart rate and respiratory rate):

- Hospitalisation in an intermediate care (IMCU) or high dependency unit (HDU)
- Oxygen administration via nasal cannula/probe, Venturi mask or reservoir mask (max. 15 l/min, no nasal highflow device)
- The use of high-flow oxygen therapy and non-invasive ventilation is not recommended in general and outside of an intensive care unit (risk of aerosols and of rapid deterioration in the case of system failure)

Patients with increasing organ dysfunction (e.g. increasing respiratory failure)

- Transfer to the intensive care unit, if possible into a special COVID-19 area

The **Swiss Academy of Medical Sciences** also provides guidelines on the triage for intensive-care treatment under resource scarcity, when insufficient resources are available and rationing decisions become necessary (<https://smw.ch/article/doi/smw.2020.20229>).

Optimisation of health resources

An article on how to optimise available health resources and implement effective management strategies in response to the current COVID-19 pandemic (Lee et al., <https://doi.org/10.1111/anae.15074>) was published online on **8 April 2020** in the journal **Anaesthesia**. The authors maintain that a tiered response

plan is required to accommodate the anticipated high requests for care of COVID-19 patients. This can be achieved by resource conservation, further demand reduction by suspension of non-urgent services and rescheduling of elective procedures that require postoperative inpatient beds, and contingency planning for creation of additional space. In particular, with a reduction of surgical demand, facilities such as post-anaesthetic recovery areas and operating theatres can be converted into ICUs. The authors further explain how, in their model of health resource use, they have converted three operating theatres into an expanded ICU to create an additional 42% of critical care bed-space for high-dependency unit cases. They modelled that 80% occupancy rate of existing critical care capacity would trigger activation of the next tier, but this trigger level could be adjusted according to the outbreak requirements. They also propose various measures to redeploy staff to address the need of trained health professionals generated by the additional ICUs beds created for critically ill patients and to mitigate the shortfall of staff with specialised skills.

Similarly, the article by Sorbello and colleagues and published in the journal **Anaesthesia on 27 March 2020** (<https://doi.org/10.1111/anae.15049>) describes the challenges that the Italian health system is facing due to the COVID-19 outbreak, despite being one of the most well-developed globally, and provides recommendations for patient management. In particular, the authors describe the key elements of clinical management, including safe oxygen therapy, airway management, personal protective equipment, as well as non-technical aspects of caring for patients with COVID-19. They further explain that extreme measures have already been undertaken, including closure of hospital wards; restricting visitor access to hospital; identification of external triage areas; dedicated patient transport and isolation pathways; and cessation of elective surgery, with only emergency, trauma and selected oncological surgery proceeding. Notably, operating rooms have been allocated as emergency critical care beds and anaesthetists have been re-allocated to critical care management and rapid response emergency care, including dedicated COVID-19 emergency teams to assist patients in non-critical care settings. In terms of public health, several measures have been implemented including the use of telemedicine consultations and domestic isolation of COVID-19 patients who are not severely unwell.

Recommendations for intensive care management have also been published by Phua and colleagues in the **Lancet Respiratory Medicine** on **6 April 2020** ([https://doi.org/10.1016/S2213-2600\(20\)30161-2](https://doi.org/10.1016/S2213-2600(20)30161-2)). The authors draw on experience from Asian ICU colleagues from a variety of settings and from the available literature on the management of critically ill COVID-19 patients. In particular, they provide recommendations in relation to ICU infrastructure, capacity, staffing and triage. The main recommendations are reported below.

ICU infrastructure

Airborne infection isolation rooms with negative pressure are not universally available, especially in resource-limited settings

Consider adequately ventilated single rooms without negative pressure or, if necessary, cohort cases in shared rooms with beds spaced apart

ICU capacity

Surges in numbers of critically ill patients with COVID-19 can occur rapidly

Implement national and regional modelling of needs for intensive care

Health systems will be put under strain in an outbreak like COVID-19

Consider whether increasing intensive care provision is an appropriate use of resources; if so, make plans for an increase in capacity, including providing intensive care in areas outside ICUs and centralising intensive care in designated ICUs

Increasing ICU capacity requires more equipment (e.g. ventilators), consumables, and pharmaceuticals, which might be in short supply

Pay close attention to logistical support and the supply chain; reduce the inflow of patients who do not urgently require intensive care (e.g. by postponing elective surgeries)

Ventilators are in short supply

Consider transport, operating theatre, and military ventilators

ICU staffing

Increasing ICU bed numbers and workload without increasing staff could result in increased mortality

Make plans for augmentation of staff from other ICUs or non-ICU areas, and provision of appropriate training (e.g. with standardised short courses)

Risk of loss of staff to illness, medical leave, or quarantine after unprotected exposure to COVID-19, with a potentially devastating effect on morale, is high

Minimise risk of infection; consider segregation of teams and physical distancing to limit unprotected exposure of multiple team members, and travel restrictions to limit exposure to COVID-19, which is now global

Staff are especially vulnerable to mental health problems such as depression and anxiety during outbreaks

Reassure staff through infection prevention measures, clear communication, limitation of shift hours, provision of rest areas, and mental health support

ICU triage

ICUs can become overwhelmed as surge strategies might not be sufficient in an emerging pandemic like COVID-19

Consider implementing a triage policy that prioritises patients for intensive care and rations scarce resources. If ICU unavailable, consider surge beds outside of ICU (for example in high-dependency units, remodelled general wards, post-anaesthesia care units, emergency departments) or in designated hospitals.

Source: [https://doi.org/10.1016/S2213-2600\(20\)30161-2](https://doi.org/10.1016/S2213-2600(20)30161-2)

On 27 March 2020, White and Bernard published a framework for rationing ventilators and critical care beds during the public health emergency caused by COVID-19 in **JAMA**

(<https://doi.org/10.1001/jama.2020.5046>). Their article focuses on the ethical implications of prioritising those critically ill patients who are most likely to survive following treatment in ICU and critical care. They propose that as no single criterion captures all morally relevant values, multiple criteria should be integrated into an allocation framework to decide which patients should be allocated ICU beds and receive ventilators when these resources are limited. Under this allocation framework, all patients who meet indications for admission to ICU are assigned a priority score based on (1) the patient's likelihood of surviving to hospital discharge, assessed with an objective measure of acute illness severity; and (2) the patient's likelihood of achieving longer-term survival based on the presence or absence of comorbid conditions that impact on survival. The authors further explain that the strengths of the framework are that it does not categorically exclude groups of patients and allows priority to go to those most likely to benefit. The framework has been adopted by many hospitals in the US.

Recent published data on hospital discharge, mortality, and time from onset of symptoms to admission to ICU and from admission to death.

At present, COVID-19 data from different countries show similar trends with high mortality for patients requiring care in the ICU. Moreover, patients with coexisting conditions and older age have been reported to be at risk for severe disease and poor outcomes after admission to ICU.

The **Intensive Care National Audit & Research Centre (ICNARC)** technical report (www.icnarc.org) contains data on all confirmed COVID-19 cases notified by the critical care units participating in the Case Mix Programme (all NHS adult, general intensive care and combined intensive care/high dependency units in England, Wales and Northern Ireland, plus some specialist and non-NHS critical care units. Up to **10 April 2020**, **ICNARC** have been notified of 4690 admissions by critical care units in England, Wales and Northern Ireland with confirmed COVID-19, either at or after admission to critical care. Of these, early data covering the first 24 hours in the critical care unit have been submitted to ICNARC for 4292 admissions for 3883 patients. **Of these 3883 patients, 871 (22%) patients have died, 818 (21%) patients have been discharged alive from critical care and 2194 (57%) patients were last reported as still receiving critical care.** Among the 1053 patients who have received advanced respiratory support, 698 (66%) **have died** within 30 days. The largest number of patients (1428) are being managed by the three London Operational Delivery Networks.

These data are similar to those observed in Italy. A retrospective case series published online in **JAMA** on 6 April 2020 reports the clinical characteristics and outcomes of 1591 consecutive patients (median age 63 years, IQR 56-70) with confirmed COVID-19 who were treated at one of the ICU of the 72 hospitals in the

COVID-19 Lombardy ICU Network in Italy between 20 February and 18 March 2020 (Grasselli et al., <https://doi.org/10.1001/jama.2020.5394>). Follow up data up were available up to 25 March 2020. Among the 1581 patients with ICU disposition data available as of 25 March 2020, **405 (26%) had died in the ICU, 256 (16%) were discharged from the ICU, and 920 patients (58%) were still in the ICU.** Older patients (n = 786; age \geq 64 years) had higher mortality than younger patients (n = 795; age <63 years) [36% versus 15%; difference= 21%; P < .001].

A pre-print of a cross-sectional analysis of **4103 patients** with confirmed COVID-19 treated at an academic health system in **New York City** between 1 March and 2 April 2020 shows that 2104 (51.3%) were treated as outpatients, and 1999 (48.7%) were admitted to the hospital. Of the 1999 hospitalised patients, 981 (49%) have been discharged and 292 (15%) have died or been discharged to hospice care. **Of the 445 patients who required mechanical ventilation 162 (36%) have died.** In the decision tree for critical illness, the most important risk factors identified by the authors were SpO₂<88, followed by procalcitonin >0.5, troponin <0.1 (protective), age >64 and CRP>200 (Petrilli et al., <https://doi.org/10.1101/2020.04.08.20057794>).

A review of 10 descriptive studies (1995 patients in total) that assesses the characteristics and outcomes of COVID-19 patients admitted to hospital in **China's Hubei** province was published in the **Journal of Medical Virology** on 12 March 2020 (Li et al. <https://doi.org/10.1002/jmv.25757>). The results of this early review indicate an average discharge rate of 52% (6 studies with a total of 432 cases) and an average fatality rate of 5% (eight studies with a total of 1560 cases) among COVID-19 hospitalised patients.

The outcomes of a series of 24 patients (mean age 64 \pm 18 years; range 23 to 97) from nine **Seattle-area** hospitals (USA) who were admitted for hypoxemic respiratory failure to the intensive care unit (ICU) with confirmed COVID-19 between 24 February and 9 March 2020 was published in the **New England Journal of Medicine** on 30 March 2020 (Bhatraju et al., <https://www.nejm.org/doi/full/10.1056/NEJMoa2004500>). Only half the patients had fever at the time of hospital admission. Mechanical ventilation was administered to 18 patients. All patients had at least 14 days of hospital follow-up. At the 23 March assessment, 12 (**50% had died**), 4 (17%) had been discharged from ICU but remained in the hospital, 3 (13%) were still in ICU and received mechanical ventilation and 5 (21%) had been discharged from the hospital.

Data available from the Italian Ministero della Salute, Consiglio Superiore di Sanità (**Italian Ministry of Health**) indicate that as of April 9, 2020, a total of **16654 hospitalised COVID-19 patients died.** The median **time from onset of symptoms to death was 10 days;** from onset of symptoms to hospitalisation was 5 days

and from hospitalisation to death was 5 days. The time from hospitalization to death was 3 days longer in those who were transferred to intensive care than those who were not transferred (7 days versus 4 days). (<http://www.salute.gov.it/nuovocoronavirus>)

The Italian data on time from onset to symptoms to death are similar to those observed in China. An observational study published online on 8 April 2020 in American Journal of Respiratory Care and Critical Care Medicine reports the outcomes of 344 critically ill COVID-19 patients who were hospitalised in eight intensive care units in Wuhan, China from 25 January to 25 February 2020 (Wang et al., <https://doi.org/10.1164/rccm.202003-0736LE>). The paper reports that 133 (38.7%) patients died at 28 days with a median survival of 25 days; **median duration from admission to death was 10 days** (IQR: 6-15 days) for non-survivors. Of the 211 survivors, 185 (87.7%) were discharged. Median duration from onset of symptoms to laboratory confirmation of infection by RT-PCR was 8 days (IQR: 5–11 days). In survivors, median duration from positive RT-PCR result to negative result was 12 days (IQR: 9–15 days) while in non-survivors median duration from infection confirmation to death was 15 days (IQR: 10–19 days).

Another observational study presents data on a total of **1017 patients** with confirmed COVID-19 pneumonia admitted to one special hospital for infectious diseases and two general hospitals in Wuhan, China from 25 December 2019 to 15 February 2020 (Du et al., *Annals of the American Thoracic Society*, published online on 7 April 2020; <https://doi.org/10.1513/AnnalsATS.202003-225OC>). As of February 24, 2020, 114 patients died in hospital and data were available for 109 of them. **All 109 patients (mean age 70 years) required admission to intensive care**; however, only 51 (46.8%) had such a chance because of limited availability. The mean time from onset of symptoms to death was 22.3 days. All 51 patients admitted to ICU required invasive mechanical ventilation, but unfortunately due to a lack of ventilators this could be organised for only 33 (64.7%) of them. The average period of hospitalisation to death in the ICU and non-ICU groups was 15.9 days (SD 8.8 days) and 12.5 days (SD 8.6 days), respectively.

A list of additional relevant sources is presented below.

Additional relevant sources of information as of April 12, 2020

Date	Policy/Guidance	Source
	UK	
09/04/20	<p>COVID-19 Compendium</p> <p>https://hpspubsrepo.blob.core.windows.net/hps-website/nss/2999/documents/1_covid-19-compendium.pdf</p> <p><i>This document contains links to current national and international policy, guidance and resources on COVID-19 from key organisations (updated daily).</i></p>	NHS Scotland
06/04/20	<p>Guidance for the role and use of non-invasive respiratory support in adult patients with COVID19 (confirmed or suspected), Version 3</p> <p>https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/specialty-guide-NIV-respiratory-support-and-coronavirus-v3.pdf</p>	NHS England
19/03/20	<p>Management of persons admitted to hospital with suspected COVID-19 infection</p> <p>https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/clinical-management-of-persons-admitted-to-hospita-v1-19-march-2020.pdf</p>	NHS England
19/03/20	<p>COVID-19 hospital discharge service requirements</p> <p>https://www.england.nhs.uk/coronavirus/publication/covid-19-hospital-discharge-service-requirements/</p> <p><i>This document focuses on the discharge of non-COVID-19 hospital inpatients who are medically fit to leave, in order to free up beds for COVID-19 patients.</i></p>	NHS England
No date	<p>NHS specialty guides (COVID-19)</p> <p>https://www.england.nhs.uk/coronavirus/secondary-care/otherresources/specialty-guides/</p> <p><i>This document lists a series of guides aimed at specialists working in hospitals in England during the pandemic.</i></p>	NHS England
March 2020	<p>All Wales COVID-19 Secondary Care Management Guideline (version 1.2)</p> <p>https://covid-19hospitalguideline.wales.nhs.uk/wp-content/themes/icst-covid19/assets/all-wales-covid-19-secondary-care-management-guideline.pdf</p>	NHS Wales
09/04/20	<p>COVID-19 rapid guideline: critical care - NICE guideline [NG159]</p> <p>https://www.nice.org.uk/guidance/ng159</p> <p>‘Critical care admission algorithm’ using the Clinical Frailty Scale</p> <p>https://www.nice.org.uk/guidance/ng159/resources/critical-care-admission-algorithm-pdf-8708948893</p>	NICE National Institute for Health and Care Excellence

Date	Policy/Guidance	Source
No date	<p>Information, guidance and resources supporting the understanding and management of Coronavirus (COVID-19)</p> <p>https://icmanaesthesiacovid-19.org/</p> <p>List of national guidance available:</p> <p>https://icmanaesthesiacovid-19.org/national-guidance</p> <p>*partnered with the Royal College of Anaesthetists, Faculty of Intensive Care Medicine and Association of Anaesthetists</p>	Intensive Care Society* (see left)
09/04/20	<p>Coronavirus: Current information and advice</p> <p>https://www.bgs.org.uk/resources/coronavirus-current-information-and-advice</p> <p><i>A compilation of current official UK/global advice and publications relating to the worldwide outbreak of COVID-19.</i></p>	British Geriatric Society
No date	<p>COVID-19: information for the respiratory community</p> <p>https://www.brit-thoracic.org.uk/about-us/covid-19-information-for-the-respiratory-community/</p> <p>Includes: The Pulmonary Rehabilitation Resource pack www.brit-thoracic.org.uk/documentlibrary/quality-improvement/covid-19/resource-pack-for-pulmonary-rehabilitation/</p>	British Thoracic Society
25/03/20	<p>Rehabilitation after critical illness in adults – Clinical guideline [CG83]</p> <p>https://www.nice.org.uk/guidance/cg83</p>	NICE
14/03/20	<p>Delirium: prevention, diagnosis and management – Clinical guideline [CG103]</p> <p>https://www.nice.org.uk/guidance/cg103</p>	NICE
01/12/15	<p>Transition between inpatient hospital settings and community or care home settings for adults with social care needs - NICE guideline [NG27]</p> <p>https://www.nice.org.uk/guidance/ng27</p>	NICE
International		
13/03/20	<p>Clinical management of severe acute respiratory infection (SARI) when COVID-19 disease is suspected: interim guidance, 13 March 2020</p> <p>https://apps.who.int/iris/handle/10665/331446</p>	WHO World Health Organisation

Date	Policy/Guidance	Source
28/03/2020	<p>Surviving Sepsis Campaign: guidelines on the management of critically ill adults with Coronavirus Disease 2019 (COVID 19)</p> <p>Alhazzani et al., Intensive Care Medicine, 2020 Mar 28. doi: 10.1007/s00134-020-06022-5. [Epub ahead of print]</p> <p>https://link.springer.com/article/10.1007/s00134-020-06022-5</p>	Surviving Sepsis Campaign COVID-19 panel
30/03/20	<p>Evidence – summary of discharge and de-escalation protocols</p> <p>http://emergentc.ca/index.php/2020/03/30/evidence-summary-of-discharge-and-de-escalation-protocols/</p> <p><i>Includes table of international discharge protocols</i></p>	University of Toronto
06/04/20	<p>A Comprehensive Literature Review on the Clinical Presentation, and Management of the Pandemic Coronavirus Disease 2019 (COVID-19)</p> <p>Kakodkar et al., Cureus 12(4): e7560. doi:10.7759/cureus.7560</p> <p>https://www.cureus.com/articles/29670-a-comprehensive-literature-review-on-the-clinical-presentation-and-management-of-the-pandemic-coronavirus-disease-2019-covid-19</p>	Journal article
09/04/20	<p>Projecting demand for critical care beds during COVID-19 outbreaks in Canada</p> <p>Shoukat et al., Canadian Medical Association Journal, April 09, 2020 cmaj.200457; DOI: https://doi.org/10.1503/cmaj.200457</p> <p>https://www.cmaj.ca/content/early/2020/04/09/cmaj.200457</p> <p><i>Computational model and simulated scenarios for COVID-19 outbreaks</i></p>	Journal article
20/01/09	<p>Who Should Receive Life Support During a Public Health Emergency? Using Ethical Principles to Improve Allocation Decisions</p> <p>White et al. Ann Intern Med. 2009; 150(2): 132–138. doi:10.7326/0003-4819-150-2-200901200-00011</p> <p>https://annals.org/aim/article-abstract/744219/who-should-receive-life-support-during-public-health-emergency-using</p>	Journal article
	PPE-specific (personal protective equipment)	
No date	<p>Recommended PPE for primary, outpatient and community care by setting, NHS and independent sector</p> <p>https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/878750/T2_poster_Recommended_PPE_for_primary_outpatient_community_and_social_care_by_setting.pdf</p>	NHS, Public Health England, Academy of Medical Royal Colleges

Date	Policy/Guidance	Source
10/04/20	COVID-19 personal protective equipment (PPE) https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe	Public Health England
	Ethics	
31/03/20	An Ethical Guidance published for frontline staff dealing with pandemic https://www.rcplondon.ac.uk/news/ethical-guidance-published-frontline-staff-dealing-pandemic	Royal College of Physicians (UK)
16/03/20	Ethical Framework for Health Care Institutions Responding to Novel Coronavirus SARS-CoV-2 (COVID-19): Guidelines for Institutional Ethics Services Responding to COVID-19' Berlinger et al., The Hastings Center, USA https://www.thehastingscenter.org/ethicalframeworkcovid19/	The Hastings Centre, USA
	Community	
03/04/20	COVID-19 rapid guideline: managing symptoms (including at the end of life) in the community [NG163] https://www.nice.org.uk/guidance/ng163	NICE
03/04/20	COVID-19 Rapid Guideline: managing suspected or confirmed pneumonia in adults in the community [NG165] https://www.nice.org.uk/guidance/ng165/chapter/2-Treatment-and-care-planning	NICE
03/04/20	COVID-19 and mitigating impact on health inequalities https://www.rcplondon.ac.uk/news/covid-19-and-mitigating-impact-health-inequalities <i>This report highlights the importance of following and screening patients for risk (e.g. smoking) or other inequality issues to include befriending or offering a friendly, supportive chat to any patients struggling with self isolation. Also, working in partnership with the local authority to arrange basic food supplies for discharged patients without support from family or friends.</i>	Royal College of Physicians (UK)
	Aberdeen and Grampian local support	
	NHS Grampian-specific website related to Covid-19 for patients and healthcare professionals https://covid19.nhsgrampian.org/?fbclid=IwAR32yIUoRnBcltcFFwAcrUArATBvE528yxaEv-79IH6xkklSsIWQIHj8PdU	

Date	Policy/Guidance	Source
	<p>Grampian Coronavirus (COVID-19) Assistance Hub</p> <p>www.GCAH.org.uk or https://www.gcah.org.uk/support-in-communities/ or Tel. 0808 196 3384 (8am-8pm, every day).</p> <p><i>This offers support, anything from picking up/delivering shopping/medicine, walking pets, to just having a chat. Anyone can ask for help and support, even if it is on behalf of someone else.</i></p>	
	<p>Aberdeen City Council</p> <p>https://www.aberdeencity.gov.uk/services/coronavirus-covid-19</p> <p>Crisis support telephone line: Tel. 0800 0304 713</p>	
	<p>Mental Health Aberdeen</p> <p>https://www.mha.uk.net/</p> <p>Telephone support service, which can be accessed by calling or emailing: Tel. 013398 86700 Email: onetoone-helpline@outlook.com</p>	