Suggested Protocol For Treatment Of Confirmed **COVID-19 Infection**

- 1. The purpose of the protocol is to assist physicians in management of patients with confirmed COVID-19 infection.
- 2. Those recommendations are based on case series, registered and observational trials on patients with MERS CoV, SARS and COVID-19.
- 3. Strict infection control measures should be maintained all the time.
- 4. Samples should be collected in negative pressure room (if not available single room with HEPA FILTERS)
- 5. Staff should wear full personal protective equipment PPE (Gown, gloves, N95 mask, face shield (goggles))
- 6. Combined nasopharyngeal/ oropharyngeal swab is recommended.
- 7. If positive, repeat the swab every 7 days (for patient whom home isolation is suitable like Nationals, stable resident with families) or every 14 days (for patients whom home isolation is not suitable e.g. laborers...) from the first sample collection date till negative.
- 8. If negative repeat after 24 hours.
- 9. If 2 consecutive negative results isolation can be discontinued
 - Lower respiratory specimen is preferred when the patient is intubated.
 - Airborne / contact isolation is recommended
 - Confirmed cases can be cohorted in case of shortage of single isolation rooms
 - For further information contact your infection control practitioner
- 10. Discharged patients will be kept in Home isolation /Quarantine for 4 weeks from the first positive COVID-result.
- 11. Request CBC, CMP, CRP, Chest X-ray, Respiratory panel including COVID-19 PCR as baseline investigations.
- 12. Request G6PD level.
- 13. Request electrocardiogram (ECG) for all patients.
- 14. Consider QuantiFERON test for patient whom will be started on Tocilizumab.
- 15. For patients on Ribavirin monitor for hemolysis (retic count, LDH, Hb).
- 16. Monitoring of CBC and LFT is recommended for patients on Interferon treatment.
- 17. Consider repeating other blood tests, CT Chest if clinically indicated.
- 18. Appropriate PPE should be applied during laboratory investigation (specimen collection and transport) performing ECG and radiological investigations.
- 19. Monitor for drug -drug interactions (consult with your clinical pharmacist)

Suggested Treatment Protocol for Asymptomatic Adult Patients with Positive COVID-19 PCR

No Risk Factors For Severe Disease

Admit the patient for observation, no treatment is recommended Strict infection control measures should be maintained all the time.

With Risk Factors For Severe Disease

Admit the patient.

D. Suggested Treatment Protocol for Pregnant Females with COVID-19 Pneumonia

Admit the patient

Strict infection control measures should be maintained all the time.

	START		
Hydroxychloroquine 400 mg OD		PO	For 10 days
	+		
Oseltamivir 150 mg BID		PO	For 10 days
	+		
Ritonavir + Lopinavir (Kaletra) 500mg (1,2)		PO	BID for 2 weeks
	+		
Azithromycin 500 mg OD		IV	For 10 days
	+		
Ceftriaxone 2 gm		IV	OD

Definition of Pneumonia:

Mild Pneumonia

Patient with pneumonia and no signs of severe pneumonia.

Severe Pneumonia

Adolescent or adult: fever or suspected respiratory infection, plus one of: • Respiratory rate >30 breaths/min • Severe respiratory distress, or SpO2 <90% on room air

N.B: CURB65 and/or PSI can be used to assess pneumonia severity

E. Suggested Treatment Protocol for COVID-19 Pneumonia Requiring Intensive Care (Septic Shock/ARDS)

Admit the patient Strict infection control measures should be maintained all the time.

START

For 10 days Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD PO

	+				
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	РО	For 5 days			
+					
Azithromycin 500 mg OD	РО	For 5 days			

Suggested Treatment Protocol for Asymptomatic Pregnant Females with Positive COVID-19 PCR

No Risk Factors For Severe Disease

Admit the patient for observation, no treatment is recommended Strict infection control measures should be maintained all the time. To be evaluated by obstetrician.

With Risk Factors For Severe Disease

Admit the patient.

	+				
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	РО	For 5 days			
+					
Azithromycin 500 mg OD	РО	For 5 days			

Risk Factors for Severe Disease (2)	Sample Collection and Infection Control Measures
Risk Factors:	 Samples should be collected in negative pressure room (if not available room with HEPA FILTERS)
1. Older adults age more than 60 years	2. Staff should wear full personal protective equipment PPE
2. People with comorbidities such as:	(Gown, gloves, N95 mask, face shield (goggles)
Cardiovascular disease	Combined nasopharyngeal/ oropharyngeal swab is
• Diabetes	recommended
• Lung disease	4. If positive repeat every 7-14 days from the date of
Cancer patients	sample collection till negative.
 Chronic kidney disease 	5. If negative repeat after 24 hours
3. Immunosuppressed patients	6. If 2 consecutive negative isolation can be discontinued

fficacy and Safety of Hydroxychloroquine for Treatment of Pneumonia Gaused by 2019-nCoV (HC-nCoV) - Full Text View - ClinicalTrials.gov. https://clinicaltrials.gov/ct2/show/NCT042615177cond-S/ al Zhou, Ting Yu*, Ronghu Du*, Guohu Fan, Ying Lu*, Zhibo Lu, Je Xuang, Yerning Wang, Bin Song, Xiaoying Gu, Lub Gany, Yuan Wei,Hu Li, Xudong Wu, Juyang Xu, Shengin Tu, Yi Zhang, Hua Chen, Bin Cac cal curves and risk factors for mortalistic of adult instantees with COVID-19 (Winhan Chara a stratomachine advote turku http://curvet.edu/dot.ork.instantee.gov

Suggested Treatment Protocol for Symptomatic Adult Patients with Positive COVID-19 PCR

A. Positive COVID-19 PCR with Uncomplicated Upper Respiratory Tract Infection

No Risk Factors For Severe Disease

Admit the patient

Strict infection control measures should be maintained all the time.

		5
+		
Oseltamivir 150 mg BID	РО	For 10 days
+		
(Darunavir /Cobicistat) (Rezolsta ®)	PO	OD for 2 weeks,
Darunavir 800 mg/Cobicistat 150 mg, Or		
Ritonavir + Lopinavir (Kaletra) 500mg (1)		BID for 2 weeks
+		
Ribavirin	PO	2.4 g orally as a loading dose
		followed by 1.2 g BID for 10 days
+		
IFN-α2a (Pegasys [®]) (2) Or	Subcutaneously	180 µg weekly for 2 weeks
Interferon alfa-2a 3 million units /0.5 mL PFS	Nebulizer	6 million units (1 ml) BID for 10 days
+		
Tocilizumab (3) For patients with evidence of cytokine release	IV	400 mg single dose to be infused
syndrome (see staging criteria below)		over 60 minutes and not to be infused in the same line with other
		medications
+		
Azithromycin 500 mg	IV	For 10 days
+		
Antibiotics	IV	As per local CAP guidelines
		. 5
+	15.7	
Methylprednisolone 40 mg	IV	BID for 5 days

F. Suggested Treatment protocol for COVID-19 Pneumonia Requiring Intensive care (Septic shock/ARDS) in Pregnant Females

Admit the patient Strict infection control measures should be maintained all the time.	
START	

SIARI		
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	РО	For 10 days
+		
Oseltamivir 150 mg BID	РО	For 10 days
+		
Ritonavir + Lopinavir (Kaletra) 500mg (1)	PO	BID for 2 weeks
+		
Azithromycin 500 mg	РО	For 10 days
+		
Antibiotics	IV	As per local CAP guidelines
+		
Tocilizumab (3) For patients with evidence of cytokine release syndrome (see staging criteria below)	IV	400 mg single dose to be infused over 60 minutes and not to be infused in the same line with other medications
+		
Methylprednisolone 40 mg	IV	BID for 5 days





B. Pregnant Females with Positive COVID-19 PCR with Uncomplicated **Upper Respiratory Tract Infection**

No Risk Factors For Severe Disease			
Admit the patient Strict infection control measures should be maintained all the time.			
+			
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	PO	For 5 days	
+			
Azithromycin 500 mg OD	PO	For 5 days	
With Risk Factors For Severe Disease			
Admit the patient Strict infection control measures should be maintained all the time.			
+			
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	PO	For 5 days	
+			
Oseltamivir 150 mg BID	PO	For 5 days	
+			
Azithromycin 500 mg OD	PO	For 5 days	

Risk Factors for Severe Disease

1. Older adults age more than 60 years

- 2. People with comorbidities such as:
- Cardiovascular disease
 - Diabetes
 - Lung disease
 - Cancer patients
- Chronic kidney disease 3. Immunosuppressed patients

Definition of Uncomplicated Upper Respiratory Tract Viral Infection

Patients with uncomplicated upper respiratory tract viral infection, may have non-specific symptoms such as fever, cough, sore throat, nasal congestion, malaise, headache, muscle pain or malaise. The elderly and immunosuppressed may present with atypical symptoms. These patients do not have any signs of dehydration, sepsis or shortness of breath.

Guidance for Tocilizumab Prescription:

Definition of ARDS

Berlin Definition of ARDS requires that all the following criteria be present for diagnosis:

- Respiratory symptoms must have begun within one week of a known clinical insult, or the patient must have new or worsening symptoms during the past week.
- Bilateral opacities must be present on a chest radiograph or computed tomographic (CT) scan. These opacities must not be fully explained by pleural effusions, lobar collapse, lung collapse, or pulmonary nodules.
- The patient's respiratory failure must not be fully explained by cardiac failure or fluid overload. An objective assessment (eg, echocardiography) to exclude hydrostatic pulmonary edema is required if no risk factors for ARDS are present.
- A moderate to severe impairment of oxygenation must be present, as defined by the ratio of arterial oxygen tension to fraction of inspired oxygen (PaO2/FiO2). The severity of the hypoxemia defines the severity of the ARDS:
 - Mild ARDS The PaO2/FiO2 is >200 mmHg, but \leq 300 mmHg, on ventilator settings that include positive end-expiratory pressure (PEEP) or continuous positive airway pressure (CPAP) \geq 5 cm H2O. • Moderate ARDS – The PaO2/FiO2 is >100 mmHg, but \leq 200 mmHg, on ventilator settings that
 - include PEEP \geq 5 cm H2O.
 - Severe ARDS The PaO2/FiO2 is \leq 100 mmHg on ventilator settings that include PEEP \geq 5 cm H2O.

Studies indicate advanced stage disease responses to beta-coronaviruses including COVID-19 have a high IL-6 cytokine signature.

Establish Clinical Status to COVID-19	Determine Treatment Intervention
Grade 1 – mild reaction	No treatment
Grade 2 – moderate reaction, fever, need for IVF (not hypotension), mild oxygen requirement	Send for serum IL-6 if available
Grade 3 – severe, liver test dysfunction, kidney injury, IVF for resuscitation, low dose, vasopressor, supplemental oxygen (high flow, BiPAP, CPAP)	Send for serum IL-6 if available; consider tocilizumab, if no effect can repeat x 2 more doses Q8H apart; if no response, consider low dose corticosteroids
Grade 4 – life threatening, mechanical ventilation, high dose vasopressor	Send for serum IL-6 if available; consider tocilizumab as Grade 3; consider corticosteroid
(adopted and based on the Penn CRS criteria)	

N.B: use for confirmed COVID-19 cases, should be prescribed by infectious disease consultant, Consider QuantiFERON test

Definition of Sepsis and Septic Shock

SEPSIS

Life-threatening organ dysfunction caused by a dysregulated host response to suspected or proven infection, with organ dysfunction. Signs of organ dysfunction include: altered mental status, difficult or fast breathing, low oxygen saturation, reduced urine output, fast heart rate, weak pulse, cold extremities or low blood pressure, skin mottling, or laboratory evidence of coagulopathy, thrombocytopenia, acidosis, high lactate or hyperbilirubinemia.

Steroid Use

when considering patients with sepsis and septic shock for glucocorticoid therapy:

• For adult patients with sepsis and septic shock, we suggest not routinely using intravenous glucocorticoid therapy as part of initial therapy

• We use glucocorticoid therapy on a

C. Suggested Treatment Protocol for COVID-19 Pneumonia (Documented pneumonia in CXR/CT Scan)

Admit the patient

Strict infection control measures should be maintained all the time.

START			
Hydroxychloroquine 400 mg BID for 1 day then 400 mg OD	PO	For 10 days	
+			
Oseltamivir 150 mg BID	PO	For 10 days	
+			
(Darunavir /Cobicistat) (Rezolsta ®) Darunavir 800 mg/Cobicistat 150 mg, Or Ritonavir + Lopinavir (Kaletra) 500mg (1,2)	PO	OD for 2 weeks, BID for 2 weeks	
+			
Azithromycin 500 mg OD	IV	For 10 days	
+			
Ceftriaxone 2 gm	IV	OD	

SEPTIC SHOCK

Persisting hypotension despite volume resuscitation, requiring vasopressors to maintain MAP \geq 65 mmHq and serum lactate level >2 mmol/L.

case-by-case basis in select patients with refractory shock (defined as a systolic blood pressure <90 mmHg for more than one hour following both adequate fluid resuscitation and vasopressor administration). • Follow intensive care recommendations

مركزالأم راض الإنتقالية **Communicable Disease Center**

