

MATH+ HOSPITAL TREATMENT PROTOCOL FOR COVID-19

MEDICATION	INDICATION/INITIATION	RECOMMENDED DOSING	TITRATION/DURATION
A. CORE MEDICATION			
Methylprednisolone	A. <i>Upon oxygen requirement or abnormal chest X-ray</i>	Preferred: 80 mg IV bolus, then 40 mg IV twice daily Alternate: 80 mg / 240 ml normal saline IV infusion at 10 ml/hr Follow COVID-19 Respiratory Failure protocol: www.flccc.net/respiratory-support-c19	A1. If no improvement in oxygenation in 1–3 days, double dose to 160 mg/daily. A2. Upon need for FIO ₂ > 0.6 or ICU, escalate to “Pulse Dose” below (B) A3. Once off IMV, NPPV, or High flow O ₂ , decrease to 20 mg twice daily. Once off O ₂ , then taper with 20 mg/day × 5 days then 10 mg/day × 5 days
	B. <i>Refractory Illness/ Cytokine Storm</i>	“Pulse” dose with 1 gram daily × 3 days	Continue × 3 days then decrease to 160 mg IV/ daily dose above, taper according to oxygen requirement (A). If no response or CRP/Ferritin high/rising, consider mega-dose IV ascorbic acid and/or “Therapeutic Plasma Exchange” below
Ascorbic Acid	<i>O₂ < 4 L on hospital ward</i>	500–1000 mg oral every 6 hours	Until discharge
	<i>O₂ > 4 L or in ICU</i>	50 mg/kg IV every 6 hours	Up to 7 days or until discharge from ICU, then switch to oral dose above
	<i>If in ICU and not improving</i>	Consider mega-doses: 25 grams IV twice daily for 3 days	Completion of 3 days of therapy
Thiamine	<i>ICU patients</i>	200 mg IV twice daily	Up to 7 days or until discharge from ICU
Heparin (LMWH)	<i>If initiated on a hospital ward</i>	1 mg/kg twice daily — monitor anti-Xa levels, target 0.6–1.1 IU/ml	Until discharge then start DOAC at half dose × 4 weeks
	<i>If initiated in the ICU</i>	0.5 mg/kg twice daily — monitor anti-Xa levels, target 0.2–0.5 IU/ml	
B. FIRST LINE ADJUNCTIVE THERAPY (use in all hospitalized patients)			
Ivermectin¹	<i>Hospitalized patients</i>	0.6 mg/kg per dose — daily ² (take with or after a meal)	For 5 days or until recovered
Nitazoxanide	<i>Hospitalized patients</i>	500 mg twice daily — (take with or after a meal)	For 5 days or until recovered
Dual Anti-Androgen Therapy	<i>Hospitalized patients</i>	1. Spironolactone 100 mg twice daily 2. Dutasteride 2 mg on day 1, followed by 1 mg daily — or Finasteride 10 mg daily	14 days or until discharge from hospital
	<i>ICU Patients</i>	1. Flutamide 250 mg TID — or Bicalutamide 150 mg daily 2. Dutasteride 2 mg on day 1, followed by 1 mg daily — or Finasteride 10 mg daily	14 days or until discharge from hospital
Vitamin D	<i>Hospitalized patients</i>	Calcifediol [25-hydroxylated vitamin D; 25(OH)D]. Dosing as suggested in Table 1 on page 3	
Melatonin	<i>Hospitalized patients</i>	6–12 mg PO at night	Until discharge

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For an overview of the developments in prevention and treatment of COVID-19, please visit www.flccc.net/covid-19-protocols



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C. SECOND LINE ADJUNCTIVE THERAPY (use in addition to first line adjunctive therapies in all ICU patients)			
Fluvoxamine³	<i>Hospitalized patients</i>	50 mg PO twice daily — consider fluoxetine 30 mg daily as an alternative (it is often better tolerated)	10–14 days
Cyproheptadine	<i>If any of: 1) on fluvoxamine, 2) hypoxemic, 3) tachypneic/respiratory distress, 4) oliguric/kidney injury</i>	8 mg — 3 x daily	until discharge, slow taper once sustained improvements noted
Zinc	<i>Hospitalized patients</i>	75–100 mg PO daily	Until discharge
Famotidine	<i>Hospitalized Patients</i>	40–80 mg PO twice daily	Until discharge
Atorvastatin	<i>ICU Patients</i>	80 mg PO daily	Until discharge
Therapeutic Plasma Exchange	<i>Patients refractory to pulse dose steroids</i>	5 sessions, every other day	Completion of 5 exchanges

Legend

CRP = C-Reactive Protein, DOAC = direct oral anti-coagulant, FiO₂ = Fraction of inspired oxygen, ICU = Intensive Care Unit, IMV = Invasive Mechanical Ventilation, IU = International units, IV = intravenous, NIPPV = Non-Invasive Positive Pressure Ventilation, O₂ = oxygen, PO (per os) = oral administration, TID = three times daily

Notes

- The safety of ivermectin in pregnancy has not been established thus treatment decisions require an assessment of the risks vs. benefits in a given clinical situation.
- Based on strong dose-dependent effects, high margin of safety around dosing, and accumulating clinical experience in Delta, doses up to 1.0mg/kg can and should be used in the more severely ill. Information on the safety of high dose ivermectin can be found here: www.flccc.net/flccc-information-evidence-for-safety-of-ivermectin (PDF) / FAQ: www.flccc.net/ivermectin-in-covid-19/faq-on-ivermectin/#ivermectin-safety
- Some individuals who are prescribed fluvoxamine experience acute anxiety which needs to be carefully monitored for and treated by the prescribing clinician to prevent rare escalation to suicidal or violent behavior.

TO CONTROL INFLAMMATION AND EXCESS CLOTTING

In all COVID-19 hospitalized patients, the therapeutic focus must be placed on early intervention utilizing powerful, evidence-based therapies to counteract:

- The overwhelming and damaging inflammatory response
- The systemic and severe hyper-coagulable state causing organ damage

By initiating the protocol soon after a patient meets criteria for oxygen supplementation, the need for mechanical ventilators and ICU beds will decrease dramatically.

TREATMENT OF LOW OXYGEN

- If patient has low oxygen saturation on nasal cannula, initiate heated high flow nasal cannula.
- Do not hesitate to increase flow limits as needed.
- Avoid early intubation that is based solely on oxygen requirements. Allow “permissive hypoxemia” as tolerated.
- Intubate only if patient demonstrates excessive work of breathing.
- Utilize “prone positioning” to help improve oxygen saturation.

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MATH+ HOSPITAL TREATMENT PROTOCOL FOR COVID-19

About the MATH+ Hospital Treatment Protocol for Covid-19

Our **MATH+** protocol is designed for hospitalized patients, to counter the body’s overwhelming inflammatory response to the SARS-CoV-2 virus. The protocol is based on numerous medical journal publications over decades. It is the hyper-inflammation, not the virus itself, that damages the lungs and other organs and ultimately causes death in COVID-19. We have found the **MATH+** protocol to be a highly effective combination therapy in controlling this extreme inflammatory response and we have now added **ivermectin** as a core component given the profound emerging efficacy data in hospitalized patients reviewed here (www.flccc.net/flccc-ivermectin-review-covid-19).

The steroid **Methylprednisolone** is a key component, increasing numbers of studies (see <https://flccc.net/medical-evidence>) show its profound effectiveness in COVID-19, which is made more potent when administered intravenously with high doses of the antioxidant **Ascorbic acid** given that the two medicines have multiple synergistic physiologic effects. **Thiamine** is given to optimize cellular oxygen utilization and energy consumption, protecting the heart, brain, and

immune system. The anticoagulant **Heparin** is important for preventing and dissolving blood clots that appear with a very high frequency in patients not given blood thinners. The **+** sign indicates several important co-interventions that have strong physiologic rationale and an excellent safety profile. It also indicates that we plan to adapt the protocol as our insights and the published medical evidence evolve.

Timing is a critical factor in the successful treatment of COVID-19. Patients must go to the hospital as soon as they experience difficulty breathing or have a low oxygen level. The **MATH+** protocol then should be administered soon after a patient meets criteria for oxygen supplementation (within the first hours after arrival in the hospital), in order to achieve maximal efficacy as delayed therapy has led to complications such as the need for mechanical ventilation.

If administered early, this formula of FDA-approved, safe, inexpensive, and readily available drugs can eliminate the need for ICU beds and mechanical ventilators and return patients to health.

Table 1. A regimen of Calcifediol* (a single dose) to rapidly raise serum 25(OH)D above 50 ng/mL**

Weight (lbs)	Weight (kgs)	Calcifediol (mg)#	Equivalent in IU	If calcifediol is not available, a bolus vitamin D ₃ (IU)
15 – 21	7 – 10	0.1	16,000	20,000
22 – 30	10 – 14	0.15	24,000	35,000
31 – 40	15 – 18	0.2	32,000	50,000
41 – 50	19 – 23	0.3	48,000	60,000
51 – 60	24 – 27	0.4	64,000	75,000
61 – 70	28 – 32	0.5	80,000	100,000
71 – 85	33 – 39	0.6	96,000	150,000
86 – 100	40 – 45	0.7	112,000	200,000
101 – 150	46 – 68	0.8	128,000	250,000
151 – 200	69 – 90	1.0	160,000	300,000
201 – 300	91 – 136	1.5	240,000	400,000
>300	> 136	2.0	320,000	500,000

* Calcifediol: partially activated vitamin D, 25(OH)D

** Use earliest possible in person with COVID-19, sepsis, Kawasaki disease, Multisystem Inflammatory Syndrome, Acute Respiratory Distress Syndrome, burns, and vitamin D deficiency in early pregnancy or other clinical emergencies.

Measurement (or the concentration) of serum 25(OH)D is not necessary.

(Table adapted with permission from S.J. Wimalawansa)

Disclaimer

The “MATH+ Hospital Treatment Protocol for COVID-19” is solely for educational purposes regarding potentially beneficial therapies for COVID-19. Never disregard professional medical advice because of something you have read on our website and releases. This protocol is not intended to be a substitute for professional medical advice, diagnosis, or treatment in regards to any patient. Treatment for an individual patient should rely on the judgement of your physician or other qualified health provider. Always seek their advice with any questions you may have regarding your health or medical condition. Please note our full disclaimer at: www.flccc.net/disclaimer

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