

Version 4/22/2021

For questions or comments about this document, email contactUHS@umich.edu

*Patients may experience diverse symptoms post COVID. Primary Care clinicians may use this table as a quick reference when determining the best initial evaluation and treatment plan depending on their patients' symptoms.*

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| **System** | **Symptom** | **Initial Work-up** | **Treatment by Primary Care** | **Referrals for Further Evaluation** | **Reasons to Refer** |
| Cardiology | Cardiac symptoms (palpitations, new arrhythmia, chest pain, edema, etc) | CBCHigh sensitivity troponinBNPDDimerCRPSed rateEKGConsider:CXREcho | Treat underlying cause as appropriate | Cardiology | All patients with cardiac complications (myocarditis, pericarditis, MI, dysrhythmia, etc) should be evaluated by cardiology. |
| Dysautonomia | COMP\*CBCTSHOrthostatic blood pressuresTilt table test | HydrationIncrease salt intakeCompression stockingsMeditation and breathworkPOTS: consider adding midodrine or fludrocortisoneHyperadrenergic POTS: beta-blocker**Patient Education:**[POTS AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDPOTS.pdf) | Post-COVID Conditions ClinicCardiology | Symptoms refractory to treatment |

\***Comp** complete metabolic panel (liver function and renal panel)

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| **System** | **Symptom** | **Initial Work-up** | **Treatment by Primary Care** | **Referrals for Further Evaluation** | **Reasons to Refer** |
| Ear, Nose and Throat | Anosmia | Evaluate for underlying etiology (allergies, postnasal drip, etc) | Nasal steroid sprays if appropriate**Patient Education:**[Anosmia and Smell Training AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/Post-COVIDAnosmia.pdf) | ENT | If >6 months |
| Endocrine | Poor glycemic control | Routine labs | Lifestyle modificationsMedication management**Patient Education:**Diabetes education | MEND |  |
| Gastroenterology | Transaminitis/liver complications post COVID | LFTHepatitis panelIron panelANASMAFerritinUS Abd w/doppler flow·  | Avoid alcohol, Tylenol, and other liver toxic substances and medications | Hepatology/GI | * **Labs:**
	+ i. If ALT and/or AST >5 x ULN
	+ ii. If baseline pre-COVD value known to be > 5 x ULN: Increase of ALT and/or AST to > 2 x baseline
	+ iii. If baseline pre-COVD value known to be 2-5 x ULN: Increase of ALT and/or AST to > 3 x baseline
	+ iv. Evidence of hyperbilirubinemia (T. Bil > 2.5) or coagulopathy (INR >1.5)
* **Clinical Features:**
	+ i. If Features of decompensated liver disease (e.g., ascites, hepatic encephalopathy)
 |
| Hematology | Thromboembo-lism and other thrombotic complications | Evaluate for underlying etiology | **Patient Education:**Anticoagulation Education | Hematology |  |
| Infectious Disease | Severe secondary pulmonary infections | Imaging or labs identifying concern |  | Infectious Disease |  |
| Nephrology | Post-COVID kidney dysfunction (AKI, hematuria, proteinuria) | Routine labs | Treat underlying condition | Nephrology |  |

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| **System** | **Symptom** | **Initial Work-up** | **Treatment by Primary Care** | **Referrals for Further Evaluation** | **Reasons to Refer** |
| Neurology | Chronic headaches | MRI brain if escalating pattern or other red flag symptoms | Lifestyle modifications (exercise, sleep, diet)GabapentinPregabalinTricyclicsDuloxetine**Patient Education:**[Chronic HA AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDChronicHeadache.pdf) | Post-COVID Conditions ClinicNeurology | Symptoms refractory to initial treatment |
| Neurologic symptoms (weakness, paresthesias, impaired mobility, etc) | CBCComp\*TSHVit B12Vit DHgb A1c if paresthesiasMRI brain if:* Moderate-Severe COVID
* >50 years of age
* Medical comorbidities/risk factors
* Impact on job or iADLs
* Focal neurological deficits or symptoms
 | GabapentinPregabalinTricyclicsDuloxetine**Patient Education:**[Paresthesias AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDParesthesia.pdf) | Post-COVID Conditions ClinicNeurologyPT/OT |  |

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| **System** | **Symptom** | **Initial Work-up** | **Treatment by Primary Care** | **Referrals for Further Evaluation** | **Reasons to Refer** |
| Other | Chronic fatigue | COMPCBCTSH[Screen for OSA](http://www.stopbang.ca/osa/screening.php) (STOP-BANG)\*consider addingANA, CRP/ESRmyalgia, arthralgia | Pacing of exercise: low-impact and short duration.Don't push to recondition.* [Pacing activity](https://jamanetwork.com/journals/jamacardiology/fullarticle/2772399)
* [Planning out your day](https://jamanetwork.com/journals/jamacardiology/fullarticle/2772399)
* [Break larger tasks into smaller ones](https://jamanetwork.com/journals/jamacardiology/fullarticle/2772399)

[Resource for clinicians](https://jamanetwork.com/journals/jamacardiology/fullarticle/2772399)Consider stimulants in severe cases**Patient Education:**[Chronic fatigue AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDChronicFatigue.pdf)[Return to exercise Post-COVID AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/Post-COVID%20ReturnToExercise.pdf) | Post-COVID Conditions ClinicSleep study if indicatedSleep Medicine | Symptoms refractory to initial treatmentSuspicion for sleep disorder |
| Chronic pain | ANA with reflex ENACRPSed rateRheumatoid factorAnti-ccp | Lifestyle modifications (exercise, sleep, diet)GabapentinPregabalinTricyclicsDuloxetine**Patient Education:**[Chronic Pain AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDChronicPain.pdf)[Chronic Pain Patient](https://www.youtube.com/watch?v=B0EhNajqkdU&feature=emb_title)[Education Class](https://www.youtube.com/watch?v=B0EhNajqkdU&feature=emb_title) | Post-COVID Conditions Clinic  | Symptoms refractory to initial treatment |
| Return to activity |  | [Resource for clinicians](https://jamanetwork.com/journals/jamacardiology/fullarticle/2772399)**Patient Education:**[Return to exercise Post-COVID AVS](https://docs.google.com/document/d/1M-swsQ9IMGjUT9GKoslEwTqb4KXXrp1Y24wojKR7q4s/edit) | Post-COVID Conditions Clinic Cardiology | Competitive athleteSevere COVID-19 infection or requiring hospitalizationAbnormal return to play cardiac testing (echo, EKG, hs-trop)Cardiac injury diagnosed subsequent to COVID-19 infection |

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| Psychiatry | DepressionAnxietyPTSD | PHQ-9GAD-7TSHCBC | CounselingConsider medicationSNRI if concurrent HA or paresthesias**Patient Education:**[Mental Health Support AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/Post-COVIDMentalHealthSupport.pdf) | Post-COVID Conditions ClinicPsychiatry | Symptoms refractory to initial treatmentNeed for additional support |
| Decreased concentrationBrain fogMemory Loss | CBCComp\*TSHVit B12Vit DSevere cognitive decline:Folate, thiamine, HIV, RPR and Neuropsychological testingMRI brain if:* Moderate-Severe COVID
* >50 years of age
* Medical comorbidities/risk factors
* Impact on job or iADLs
* Focal neurological deficits or symptoms
 | If symptoms significant:atomoxetinedextroamphetamine/amphetaminemethylphenidatemodafinilCognitive therapy**Patient Education:**[Brain Fog AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/Post-COVIDBrainFog.pdf) | Post COVID Conditions Clinic  |  |

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| Pulmonary | Chronic dyspnea | CBCBNPResting pulse ox1 minute Sit to Stand test **Slow gradual recovery with persistent sx >8-12 wk:**CXRAdult com[plete PFT](http://www.stopbang.ca/osa/screening.php) **[Progressive dyspnea and/or dry/velcro crackles on exam:](http://www.stopbang.ca/osa/screening.php)** [CXR](http://www.stopbang.ca/osa/screening.php)[Adult complete PFT](http://www.stopbang.ca/osa/screening.php) [Referral to Pulmonary](http://www.stopbang.ca/osa/screening.php)[Sc](http://www.stopbang.ca/osa/screening.php)reen for OSA (STOP-BANG)CT chest if concerning exam or PFT findings | **Breathing Exercises:**[Belly Breathing](https://www.youtube.com/watch?v=wai-GIYGMeo)[Pursed Lip Breathing](https://www.youtube.com/watch?v=7kpJ0QlRss4)[Boxed Breathing](https://www.youtube.com/watch?v=tEmt1Znux58) 1:2 ratio, inhale:exhaleIncentive spiromet[er](https://docs.google.com/document/d/1RLlnbT-Q-uuzfzG5RDZIrGr4KeN0gwzl9wOFd7vYHtY/edit#heading=h.3foxfye8li7n)Consider pulse ox for patient reassurance**Patient Education:**[Breathlessness AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDBreathlessness.pdf) | Post-COVID Conditions Clinic PulmonarySleep study if indicated | Progressive dyspnea and/or dry/velcro crackles on examSymptoms >12 weeksSit to Stand Test ≥4% desaturationConcerning findings on CXR or Spirometry/DLCOSTOP-BANG ≥3 |
| Chronic cough | Evaluate for common causes including GERD, postnasal drip, ACEI, etcConsider chest imaging if not resolving in 6-8 weeks after infection or if evidence of secondary bacterial infection | Treat underlying cause if applicableConsider cough suppressants (dextromethorphan, benzonatate) |  | Symptoms refractory to treatmentConcerning symptoms or findings on imaging |

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| Sleep Medicine | Insomnia | TSHCBCIron studies[Screen for OSA](http://www.stopbang.ca/osa/screening.php) (STOP-BANG) | CBT-ISleep hygieneSleep aids:* melatonin
* mirtazapine
* gabapentin
* amitriptyline (if paresthesias or headaches are also present).

**Patient Education:**[Insomnia AVS](http://www.med.umich.edu/1libr/FamilyMedicine/PostCOVIDclinic/PostCOVIDInsomnia.pdf) | Sleep Medicine | Symptoms refractory to initial treatment |

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