

**Figure 3.** Potential evaluation and management of patients with initial mild and severe COVID-19 illness.

Days from symptom onset	Patient X	Patient Y
0-1	Shortness of breath, cough, fever	Loss of taste/smell, fever, cough, shortness of breath, body aches, fatigue, nausea, vomiting
7-30	<ul style="list-style-type: none"> <li>- Admitted to ICU with ARDS due to severe COVID-19 pneumonia. Interventions included sedation, paralysis and prone positioning.</li> <li>- Hospital length of stay 23 days.</li> </ul>	<ul style="list-style-type: none"> <li>- Evaluated in the emergency room. Chest X-ray normal, oxygen saturation 100% on room air.</li> <li>- Discharged home with supportive care. Above symptoms persist.</li> </ul>
31-45	<ul style="list-style-type: none"> <li>- Impairments in cognition, mobility and ADLs</li> <li>- Acute inpatient rehabilitation, with PT, OT, SLP for 14 days.</li> <li>- Discharged on supplemental oxygen at 2 LPM</li> </ul>	<ul style="list-style-type: none"> <li>- Loss of smell, shortness of breath, cough, fatigue persist</li> <li>- New, persistent “brain fog”, dizziness on standing, palpitations.</li> </ul>
46	<p><b>Clinic evaluation:</b></p> <ul style="list-style-type: none"> <li>- Impairment in ADLs</li> <li>- 6MWT: 65% predicted</li> <li>- Confirmed need for supplemental oxygen</li> <li>- PFTs: moderate restriction and moderate gas transfer defect</li> <li>- Neuropsychological evaluation: moderate cognitive impairment; anxiety and PTSD symptoms</li> <li>- Pharmacy: inappropriate continuation of several hospital medications</li> <li>- Not returned to work</li> </ul> <p><b>Recommendations:</b></p> <ul style="list-style-type: none"> <li>- Outpatient OT and PT</li> <li>- Consideration of pulmonary rehabilitation</li> <li>- SLP (to address cognitive impairment)</li> <li>- Rehabilitation Psychology</li> <li>- Social Work</li> <li>- Pulmonary follow-up (post-ARDS fibrosis)</li> <li>- Psychiatry follow-up (impaired ADLs and mobility)</li> <li>- Coordination with primary care for preventive health and management of chronic conditions</li> </ul>	<ul style="list-style-type: none"> <li>- Tachycardia</li> <li>- 6MWT: 85% predicted</li> <li>- Cough partially responsive to short-acting bronchodilator and proton pump inhibitor (no post-nasal drip reported)</li> <li>- PFTs: normal</li> <li>- Neuropsychological evaluation: mild cognitive impairment; anxiety</li> <li>- Pharmacy: poor medication adherence due to memory impairment</li> <li>- Not returned to work</li> <li>- Outpatient PT</li> <li>- Otolaryngology referral with consideration of SLP referral</li> <li>- Electrocardiogram with consideration of Cardiology referral pending results and clinical trajectory</li> <li>- Rehabilitation Psychology</li> <li>- Social Work</li> <li>- Pulmonary follow-up (persistent cough)</li> <li>- Psychiatry follow-up (fatigue and impaired mobility)</li> <li>- Coordination with primary care for preventive health and management of chronic conditions</li> </ul>

Patients X and Y represent common clinical manifestations and evaluations for patients presenting to a post-acute sequelae of COVID-19 clinic. Patients can have acute COVID-19 illness ranging from mild to severe.

Abbreviations: 6MWT=6-minute walk test; ADLs=activities of daily living; ARDS=acute respiratory distress syndrome; LPM=liters per minute; OT=occupational therapy; PFTs=pulmonary function tests; PT=physical therapy; SLP=speech-language pathology;

**Table 1. Systematic reviews on post-acute sequelae of COVID-19**

Systematic Review	Number of studies	Number of patients	Age (yrs)	Hospitalized, non-hospitalized	Study locations	Follow-up Period <sup>a</sup>	Proportion with ≥1 persistent symptom at follow-up	PRISMA Guidelines <sup>b</sup> Followed (Yes/No)
Lopez-Leon et al <sup>4 *</sup>	15	47,910	Range 17-87	11 hospitalized 4 mixed	9 Europe; 4 North America; 1 each from Australia, China, Egypt	14-110 d	80% (95% CI 65%-92%)	Yes
Michelen et al <sup>15 *^</sup>	39	10,951	Range <1 to 93 (4 included children)	26 hospitalized 4 non-hospitalized 9 mixed	24 Europe; 9 Asia; 3 North America; 3 Middle East	Longest follow-up mean (SD) 222 (11) d	NR	Yes
Nasserie et al <sup>18</sup>	45	9751	30 with mean/median <60 14 with mean/median <50	33 hospitalized 2 non-hospitalized 10 mixed	31 Europe; 8 Asia; 5 North America; 1 Middle East	28 d to 7 mos	Median 73% (IQR 55%-80%)	No <sup>c</sup>
Domingo et al <sup>19 *^</sup>	27 <sup>d</sup>	7162 adults	NR	15 hospitalized	Europe 16; Asia 6;	4-12 wks	83% (95% CI 65-93%)	Yes

				5 non-hospitalized 5 mixed 2 unspecified	North America 3; Others 3	>12 wks	56% (34-75%)	
Fernandez-de-las-Penas et al <sup>20</sup>	33	24,255	Mean (SD) 48 (17)	15,244 hospitalized <sup>e</sup> 9011 non-hospitalized <sup>e</sup>	17 Europe; 8 North America; 5 Asia; 1 Russia; 1 Egypt	Median 21d to 36 weeks	63% (95% CI 44%-79%) at 30 d <sup>f</sup> 72% (53%-85%) at 60 d <sup>g</sup> 46% (28%-65%) at >= 90 d <sup>f</sup>	Yes
Iqbal et al <sup>21</sup>	47 (30 in meta-analysis)	12,974	NR	20 hospitalized 10 non-hosp 13 mixed 2 unspecified	35 Europe; 4 Asia; 3 North America; 1 Middle East; 1 Australia; 1 South America	28 d to 6 mos	NR	Yes
Malik et al <sup>22*</sup>	21	54,730	Median 54	Both hospitalized & non-hospitalized	10 Europe; 4 North America; 2 Africa; 2 China; 2 Middle East; 1 Australia	14 d to 186 d	NR	Yes





Cough	19 (7-34)	8 (5-14)	---	6 (4-8) (dry cough) 5 (3-7) (productive cough)	8.6 (5.3-13.7)	11 (7-17)	17	2-59	13 (9-17)
<b>Cardiac</b>									
Chest pain/Discomfort	16 (10-22)	6 (3-12)	13 (11-18)	---	9 (7-13)	17 (5-35)	10	0-89	16 (12-21)
Palpitations	11 (6-17)	10 (6-15)	---	---	10 (6-15)		9	9-62	
Increased resting heart rate	11 (9-14)	---	---	---	---	---	---	---	---
<b>Musculoskeletal</b>									
Joint Pain/Arthralgia	19 (7-34)	9 (6-15)	---	9 (8-11)	10 (7-15)	---	16	6-55	---
Muscle pain/myalgia	---	11 (6-20)	---	5 (2-12)	11 (7-18)	---	6	2-51	---
Impaired mobility	---	14 (5-37)	---	---	---	---	---	7	---
<b>Gastroenterologic</b>									
Nausea/Vomiting	16 (10-23)	7 (2-24)	---	---	Nausea 5 (2-10) Vomiting 1 (0-2)	---	---	---	---
Loss of appetite	---	18 (4-51)	---	---	---	---	---	6-8	---
Digestive Disorders	12 (7-18)	---	---	---	---		8	1-33	---
<b>Sleep</b>									
Sleep Disorder	11 (3-24)	18 (10-32)	---	25 (24-29)	---	44 (8-85)	26	22-53	---
<b>Psychological</b>									
Anxiety	13 (3-26)	19 (9-35)	22 (10-30)	---	---	---	17	3-25 <sup>c</sup>	---
Depression	12 (3-23)	8 (4-15)	15 (11-18)	---	---	---	14	3-25 <sup>c</sup>	---
<b>Quality of Life</b>									

Reduced quality of life	---	37 (18-60)	---	---	---	---	---	---	52 (33-71)
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Criteria: Symptoms were included in the table if at least one systematic review reported >10% pooled proportion estimate and estimates from systematic reviews were included if at least 2 studies in the review evaluated the symptom.

<sup>‡</sup>Includes estimates from studies reporting symptoms from approximately > 12 weeks after acute illness

\*Michelen et al was the only systematic review to report on weakness (proportion (95% CI) 41% (25-59%); malaise (33% (15-57%)); and decreased sensation (11% (7-17%))

<sup>^</sup>Sanchez-Ramirez was the only systematic review to report pooled estimates for abnormal CT chest 59% (44-73%); impaired diffusing capacity (31% (24-38%)); and lung restriction as measured by pulmonary function tests (12% (8-17%)).

<sup>‡</sup>Median not reported; numbers represent range from 4 studies

<sup>b</sup>Includes composite of “cognitive/memory/concentration impairment”

<sup>c</sup>Anxiety and depression listed together