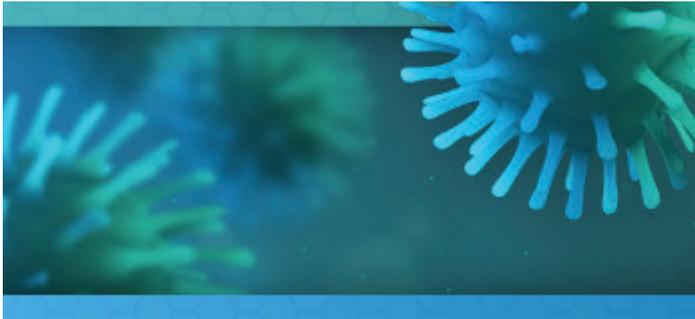


Sequelae of COVID-19: Part I

Cardiac, Pulmonary, Dermatological Complications

WHITE PAPER



As we move further from the date that Coronavirus disease 2019 (COVID-19) was first identified in the United States, it is important to reflect on the long-term effects this acute disease has had on patients. Throughout the pandemic, Intellis worked diligently to update COVID-19 resources. As a result, our efforts allowed us to learn about new developments and recognize when medical insights into the novel virus proved unsubstantiated. Research continues to evolve as the medical community seeks to better understand the disease's impact, and the passage of time presents the opportunity to evaluate the effects on body systems.

Recovering from an overwhelming virus can be an arduous task. As patients move from sometimes protracted stays in an intensive care unit to maintaining their health on an outpatient basis, the long-term ramifications of infection become evident. It is essential to explore some of the systemic complications seen in the patient population who recovered from COVID-19 infection and some documentation and diagnoses that may require partnering with providers to ensure appropriate data collection. The discussion on complications by body system is not all-encompassing. Still, it previews the documentation that medical coders and clinical documentation integrity (CDI) specialists should expect in the post-COVID-19 patient population.

Cardiac Complications

A *JAMA Cardiology* article published in July 2020, presented a study that evaluated a small group of patients who had recovered from COVID-19 infection to assess cardiovascular outcomes. The study participants were predominantly managed in the outpatient setting, with only one-third of participants qualifying as "severely unwell." Despite the relatively "well" pre-infection health status of

study participants, 78% demonstrated cardiac involvement, and 60% had ongoing myocardial inflammation or myocarditis.

Additional studies have gone on to tie severe cases of COVID-19 that develop cytokine release syndrome with further cardiac complications. According to the article in the *Journal of American College of Cardiology*, "COVID-19 Illness and Heart Failure: A Missing Link?", the authors state, "Observations suggest a high frequency of cardiovascular events, with patients dying from cardiac arrhythmias and heart failure, once these biomarkers become established." Outpatient management and evaluation of patients with COVID-19 are necessary to identify signs of cardiac dysfunction even in those without severe disease. Documentation may not always be reflective of the cardiac impairments, so outpatient CDI specialists and coders are tasked with ensuring that the administrative data is reflective of the clinical care. Diagnoses may vary significantly from one COVID-19 survivor to the next, but accuracy is the healthcare information industry's best chance at contributing to the understanding of this acute disease.



Cardiac Complication Examples	Code
Viral (infective) myocarditis	I40.00
Myocarditis, unspecified	I51.4
Chronic systolic heart failure	I50.22
Chronic diastolic heart failure	I50.32
Left ventricular failure	I50.1

Pulmonary Complications

Many patients recovering from even mild COVID-19 symptoms continue with pulmonary symptoms for prolonged periods. COVID-19 is not the first time that a coronavirus has left the patient's lungs requiring extensive recovery time if recovery is possible. Severe acute respiratory syndrome (SARS) and Middle Eastern Respiratory Syndrome (MERS), two other coronaviruses, left "approximately 30%" of patients with "persisting lung abnormalities (BMJ, 2020)." Hospitals are discharging more patients home with oxygen as they continue to require supplementation with expectations of weaning over time. The use of this treatment may be temporary for some patients. For those with chronic lung diseases, this may become a permanent treatment. In these cases, coders

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and CDI professionals need to ensure appropriate documentation to reflect the patient’s need for home oxygen. Each patient scenario is unique, but working with providers for greater specificity than “shortness of breath” or “hypoxia” is essential for appropriate data collection.

Pulmonary fibrosis is one of the many long-term concerns for the COVID-19 patient population. The damage from the infection, along with the potential barotrauma from life-sustaining treatments, may be responsible for permanent scarring of the patient’s lungs. With its accompanying chronic cough, bronchiectasis may be a continuing issue for patients even after the virus has subsided. For those with chronic lung diseases, like chronic obstructive pulmonary disease (COPD), the long-term ramifications of infection will likely be a topic of medical research for years to come.



Pulmonary Complication Examples	Code
Pulmonary fibrosis, unspecified	J84.10
Bronchiectasis, uncomplicated	J47.9
Chronic respiratory failure with hypercapnia	J96.12
Chronic respiratory failure with hypoxia	J96.11
Chronic obstructive pulmonary disease, unspecified	J44.9

Dermatological Complications

While “COVID toes” became a hot topic in managing a subset of patients during the pandemic, the American Dermatology Association has begun to call into question whether these dermatological findings are merely correlated with the COVID-19 pandemic and not explicitly caused by the virus. In a rush to solve problems, medicine must be careful not to engage in a “false cause fallacy.” Correlation does not equal causation. The objective of several studies has been to identify whether these chilblains, as they tend to be classified, are a direct result of the COVID-19 virus.

Documentation by providers may reference the diagnosis of “COVID toes” without acknowledging that an ICD-10-CM code does not exist for this terminology. Providers may be queried by outpatient CDI specialists or coders to specify this terminology further if a diagnosis code is necessary. Often physicians may be managing chilblains, also referred to as pernio, which presents as peripheral

cyanotic lesions. Providers may not classify these lesions as chilblains or pernio and may simply be managing these skin lesions in a patient who may be suspected or diagnosed with COVID-19.



Dermatological Complication Examples	Code
Chilblains or pernio, not associated with cold	T691.XXA
Other specified disorders of the skin and subcutaneous tissue	L98.8

Continued Medical Research

The publication of medical research related to the ramifications of COVID-19 continues to increase almost uninhibited from the traditional need to subscribe to each academic medical journal. This availability allows equal access to anyone interested in reviewing findings related to COVID-19. At Intellis, education is at the heart of all that we do, and we recognize the willingness of the medical community to provide us this unprecedented level of access. The Sequelae of COVID-19: Part II white paper relates to the neurological, psychological, and renal complications associated with the COVID-19 cohort of patients.

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