

Frameworks and considerations for COVID-19 related analyses

Initial methodologies for coding and tracking COVID-19 related care

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Understanding the economic and clinical impact of COVID-19 requires innovative and flexible analytic methodologies. This Milliman brief provides an analytic guide to assist healthcare organizations with COVID-19 pandemic analytics.

The U.S. healthcare system faces daunting challenges as it grapples with the COVID-19 pandemic. Healthcare organizations must cope with shortages of supplies, equipment, medications, and professional staff, in the face of testing limitations, the severity of the disease and few therapeutic options, as well as the high costs of emergency care and intensive care, and diminished revenues from routine, elective and preventive healthcare services. The rapid spread of the disease from person to person—often by people who are asymptomatic—makes protecting public safety and the safety of frontline healthcare professionals a continuous struggle. Policymakers are trying to predict the course and mitigate the outbreak. Regulators have issued new administrative codes, waived certain regulations, and provided additional guidance. Scientific and clinical knowledge about COVID-19 is currently incomplete, and new insights are emerging on almost a daily basis. On top of this, the deliberate shutdown of economic activities to slow contagion has caused a substantial increase in unemployment, which will lead to mass migration among health insurance coverage sources and likely an increase in the rate of Americans who go without health insurance.

This Milliman brief was developed to support healthcare organizations in addressing this rapidly changing landscape by providing a technical analytic guide to help assess the impact of COVID-19 on patterns of healthcare utilization, healthcare costs, and population health. Making sense of the data can help all stakeholders—including payers, providers, and employers—navigate uncertainty, so that they can be prepared to respond to and manage through changes in their business and plan for recovery.

This brief highlights relevant codes reported on administrative claims for COVID-19 diagnosis and testing, ranges of codes that identify other conditions that may be related to COVID-19 infection, and it describes important considerations for the design of analyses.

BASIC BUILDING BLOCKS OF ANALYSIS

The basic building blocks of COVID-19 analysis include:

- Identifying populations
- Quantifying rate of COVID-19 testing
- Estimating disease prevalence based on confirmed diagnoses
- Identifying increases in the prevalence of symptoms, signs, and medical conditions that may be due to diagnosed or undiagnosed COVID-19
- Identifying hospitalizations and tracking intensive care and ventilator utilization
- Measuring changes in healthcare visits, associated ancillary services, procedures, and other healthcare services for COVID-19 cases as well as all members of the population
- Mortality data, including all causes of death, place of death, date, demographics

Figure 1 identifies key information used in COVID-19 analysis.

FIGURE 1: SOURCES OF INFORMATION

ICD-10-CM diagnostic codes from the Center of Disease Control and Prevention (CDC)¹

HCPCS codes from Centers for Medicare & Medicaid Services (CMS), updated March 31, 2020²

CPT codes for procedures and services, maintained by the American Medical Association (AMA)³

ICD-10 MS-DRGs Version 37.1 R1 effective April 1, 2020, from Centers for Medicare & Medicaid Services (CMS)⁴

Revenue codes that identify intensive care services, identified by the National Uniform Billing Committee⁵

Mortality data reported by National Vital Statistics System (NVSS) at the CDC National Center for Health Statistics⁶

BACKGROUND CONTEXT – THE COVID-19 PANDEMIC

COVID-19 (“coronavirus disease 2019”) is caused by the novel coronavirus, SARS-CoV-2 (previously known as 2019-nCoV), which emerged in December 2019 and spread rapidly by human-to-human transmission through droplet contamination.⁷

On January 30, 2020, the World Health Organization (WHO) declared the outbreak a public health emergency of international concern. Subsequently, on March 11, 2020, the WHO characterized COVID-19 as a pandemic,⁸ and called this “the first pandemic caused by a coronavirus”.

WHO characterized previous large-scale outbreaks of other coronaviruses as epidemics, such as SARS coronavirus (SARS-CoV) causing Severe Acute Respiratory Syndrome⁹ (2002-2003 outbreak), and Middle East Respiratory Syndrome (MERS) coronavirus (MERS-CoV) causing Middle East Respiratory Syndrome¹⁰ (2014-2016 outbreak). COVID-19 seems to spread more easily than these other coronaviruses.¹¹

Challenges in COVID-19 analysis

Data and analytics are the lifeblood of decision-making in the healthcare sector, so it is not surprising that healthcare organizations are anxious to understand the clinical and economic impact of COVID-19.

Most organizations have an existing reporting and analytics function they rely on to help inform business decisions. Some organizations use an analytic system from a vendor and others rely on proprietary systems and ad hoc analysis. Regardless of how they approach analytics, nearly all organizations will face certain unique challenges that will complicate their access to timely, complete, and credible information about COVID-19. These challenges are not, however, insurmountable, but rather require organizations to be innovative and flexible in how they approach the analysis.

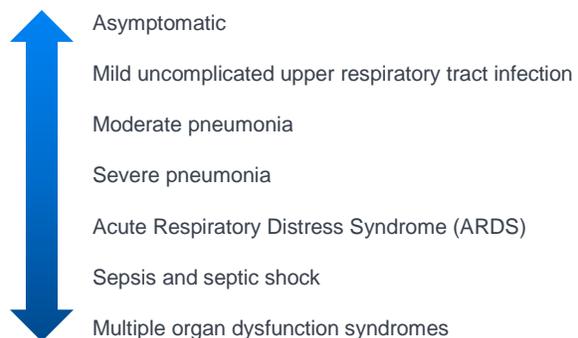
UNDER-RECOGNITION OF COVID-19

At the most basic level, disease-specific analysis relies on the existence of complete and credible health insurance claims experience data populated with relevant markers of the disease. As a new condition, COVID-19 may be under-recognized and under-reported for a variety of reasons:

- Testing is not conducted or recommended for 100% of patients. Limited testing is likely to be the most significant cause of under-recognition, especially in the early stages of the pandemic.
- Testing does not have 100% accuracy (false negatives can occur).
- Symptoms of the early stages of the disease are nonspecific, and have a broad range of differential diagnoses.

- COVID-19 infection appears to have a varied clinical spectrum ranging from asymptomatic to multiple organ dysfunction syndromes¹² (see Figure 2).
- Long term complications among survivors of COVID-19 are not yet known.

FIGURE 2: COVID-19 CLINICAL SPECTRUM



RESTRICTED TESTING

Diagnosed cases are highly dependent on who gets testing, and this varies over the time of the pandemic, including by country and region. For example, early restrictions initially limited testing in the United States to those who had a travel history to China. Subsequent test shortages later resulted in symptomatic patients who were not hospitalized being ineligible for COVID-19 testing. Testing per capita is a major factor to consider in any analysis of claims data.

RELIABILITY OF TEST RESULTS

Identification of the COVID-19 positive population is also dependent on the reliability of test results, which can vary.

For example, a negative COVID-19 test result may indicate that the patient does not have the virus; or it may mean that the level of SARS-CoV-2 RNA in the sample was not above the limit of detection at the time the test was administered. False negatives can occur, potentially due to low viral load at early stages of the disease, low amounts of virus in throat and nose for some patients, or technical issues in sample collection (inadequate nasopharyngeal swab), handling, shipping, or mutation of the virus.¹³

The World Health Organization advises that a negative result does not rule out or exclude the possibility of COVID-19.¹⁴

CLAIMS DATA LAGS

Most commonly healthcare analytics rely on claims data as the primary underlying data source. Because COVID-19 is an emerging disease – new COVID-19 diagnosis and procedure codes were only recently introduced in the past few weeks – it will take time for COVID-19 diagnoses and related procedures to appear in claims data.

Providers recently started using these codes and may also be delayed in submitting claims due to a shortage of workers, lack of clarity about the instructions for the reporting of these codes, and other reasons.

Hospitalized patients with confirmed COVID-19 diagnoses may have prolonged lengths of stay due to the severity of illness and their needs for ventilator support and intensive care services.

COVID-19 Analytics Guide

This section provides practical guidance to help healthcare organizations analyze the impact of COVID-19 on cost and utilization trends and study its effects on healthcare services that are related to COVID-19. We offer specific approaches for identifying COVID-19 testing and diagnosis, intensive care unit (ICU) and ventilator utilization, and signs, symptoms, and medical conditions that occur in diagnosed COVID-19 cases or patients who have unrecognized COVID-19 disease. We also consider how to identify potential changes in healthcare utilization that are not directly related to the care of COVID-19 patients but are linked to policies and capacity during the pandemic, specifically reductions in elective or nonessential procedures and increases in telehealth and communication technology-based services (CTBS). The intent is to provide initial supportive resources for organizations that are analyzing the financial implications of the pandemic as they navigate dramatic changes in the healthcare landscape.

The guide is organized into sections as follows:

1. Identifying patient populations for specific analyses:
 - Identifying SARS-CoV-2 testing
 - Identifying people diagnosed with COVID-19
 - Identifying symptoms, signs, and medical conditions that may be due to diagnosed or undiagnosed COVID-19
 - Identifying patients who received ICU services or ventilator support
2. Setting up analytic templates to measure trends in cost and utilization
3. Identifying services likely to have significant changes in utilization during the COVID-19 pandemic

1. Identifying patient populations for specific analyses

IDENTIFYING SARS-COV-2 TESTING

The American Medical Association (AMA) released a new CPT code in early March 2020 to identify COVID-19 testing.¹⁵ CMS also established new alpha-numeric HCPCS codes for lab testing.

The new specific codes are shown in Table 1A.

TABLE 1A: COVID-19 TESTING CODES

HCPCS Code	Description
87635	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]), amplified probe technique
U0001	Coronavirus testing using the Centers for Disease Control and Prevention (CDC) 2019 Novel Coronavirus Real Time RT-PCR Diagnostic Test Panel
U0002	Validated non-CDC laboratory tests for SARS-CoV-2/2019-nCoV (COVID-19)
U0003	Infectious agent detection by nucleic acid (DNA or RNA); severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]), amplified probe technique, making use of high throughput technologies
U0004	2019-nCoV Coronavirus, SARS-CoV-2/2019-nCoV (COVID-19), any technique, multiple types or subtypes (includes all targets), non-CDC, making use of high throughput technologies

Table 1B overleaf shows specimen-related codes.

Similar to influenza, there is no code for swabbing for a COVID-19 test. However, providers can report the code 99000 or 99001 for specimen handling and transportation to the lab. Depending on the patient's location, provider type, and clinical laboratory collecting the specimen or performing the test, payment for specimen collection and handling may be bundled into other services billed by the provider for management of the patient and, therefore, not separately reportable under these codes.

Other new codes, G2023 and G2024, are billable only by clinical laboratories, and were added to the national HCPCS file with an effective date of March 1, 2020.¹⁶

TABLE 1B: SPECIMEN-RELATED CODES

HCPCS Code	Description
99000	Handling and/or conveyance of specimen for transfer from the physician's office to a laboratory
99001	Handling and/or conveyance of specimen for transfer from the patient in other than a physician's office to a laboratory
G2023	Specimen collection for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]), any specimen source
G2024	Specimen collection for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]), from an individual in a SNF or by a laboratory on behalf of a HHA, any specimen source

The AMA recently added two new codes for antibody testing on April 10, 2020.¹⁷

TABLE 1C: ANTIBODY TESTING CODES

CPT Code	Description
86328	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]); single step method
86769	Antibody; severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (Coronavirus disease [COVID-19]); multiple-step method

Regulatory bodies have convened special meetings in recent weeks to approve codes specific to testing for SARS-CoV-2 (COVID-19). In light of this evolving response, this list of testing codes and specimen-related codes may not be exhaustive.

IDENTIFYING PEOPLE DIAGNOSED WITH COVID-19

The CDC released a new ICD-10-CM diagnosis code on March 18, 2020 specific to COVID-19 to be used starting on April 1, 2020.¹⁸ This code is identified in Table 2A.

TABLE 2A: COVID-19 DIAGNOSIS CODES

ICD-10 Code	Description
U071	COVID-19

For billing and reporting of services prior to April 1, 2020, the CDC provided guidance on using existing ICD-10-CM codes: B9729 (other coronavirus as cause of diseases classified elsewhere), in conjunction with the following existing J codes.¹⁹

TABLE 2B: COVID-19 DIAGNOSTIC CODES

ICD-10 Code	Description
B9729	Other coronavirus as the cause of diseases classified elsewhere in conjunction with the code for the reason for the encounter (e.g. pneumonia, acute bronchitis).

TABLE 2C: DIAGNOSTIC CODES USED WITH B9729

ICD-10 Code	Description	CDC Guidance
J1289	Other viral pneumonia	For a pneumonia case confirmed as due to the novel coronavirus COVID-19, CDC guidance assigns code J1289 and code B9729
J208	Acute bronchitis due to other specified organisms	For acute bronchitis confirmed as due to COVID-19, CDC guidance assigns code J208 and code B9729
J40	Bronchitis, not specified as acute or chronic	For bronchitis NOS confirmed as due to COVID-19, CDC guidance assigns code J40 and code B9729
J22	Unspecified acute lower respiratory infection, NOS	For lower respiratory infection documented as associated with COVID-19, CDC guidance assigns code J22 with code B9729
J988	Other specified respiratory disorders	For documented association of COVID-19 with a respiratory infection, NOS, CDC guidance assigns code J988 with code B9729
J80	Acute respiratory distress syndrome	For cases with ARDS due to COVID-19, CDC guidance assigns code J80 and code B9729

Refer to the CDC guidance for more details on official coding guidelines.¹⁹

Due to variation in COVID-19 testing per capita among populations, wide variation in the symptoms caused by infection, and known limitations of testing accuracy, it is probable that the newly introduced specific diagnosis code for COVID-19 will still under-report the true prevalence of the disease.

In addition, CDC instructions for reporting the COVID-19 diagnosis code specify that “if the provider documents ‘suspected,’ ‘possible,’ ‘probable,’ or ‘inconclusive’ COVID19, do not assign code U071. Assign a code(s) explaining the reason for encounter (such as fever), or Z20.828, contact with and (suspected) exposure to other viral communicable diseases”.¹⁹ Therefore, identifying cases by the diagnosis code alone will not allow a determination from claims data of the full impact of COVID-19.

OTHER SYMPTOMS, SIGNS, AND MEDICAL CONDITIONS THAT MAY BE DUE TO COVID-19

A range of symptoms, signs and medical conditions that may occur in COVID-19 patients are potentially useful for assessing the clinical characteristics of COVID-19 cases, including severity and the associated resource use. In addition, these symptoms and conditions, alone or in combination, may be used to identify patients who have a high likelihood of undiagnosed COVID-19, or to monitor population trends that may indicate the presence of unrecognized COVID-19. Table 3 provides a non-exhaustive list of ICD-10-CM diagnosis codes for symptoms, signs, and conditions that have been reported in association with COVID-19.^{19, 20, 21, 22, 23}

TABLE 3: SYMPTOMS, SIGNS, AND CONDITIONS ASSOCIATED WITH COVID-19

ICD-10 Code	Description
R05	Cough
R509	Fever, unspecified
R0602	Shortness of breath
R630	Anorexia (applicable to loss of appetite)
R197	Diarrhea, unspecified
R5383	Malaise and fatigue, other fatigue
R51	Headache
R430	Anosmia (loss of smell)
I6781	Acute cerebrovascular insufficiency, unspecified
R419	Unspecified symptoms and signs involving cognitive functions and awareness
M6282	Rhabdomyolysis (skeletal muscle injury breakdown)
R42	Dizziness and giddiness
R270	Ataxia, unspecified
G405	Epileptic seizures related to external causes
B309	Viral conjunctivitis, unspecified
H1089	Other conjunctivitis
J9600	Acute respiratory failure, unspecified whether with hypoxia or hypercapnia
J9601	Acute respiratory failure with hypoxia
J9602	Acute respiratory failure with hypercapnia

ICD-10 Code	Description
J9620	Acute and chronic respiratory failure, unspecified whether with hypoxia or hypercapnia
J9621	Acute and chronic respiratory failure with hypoxia
J9622	Acute and chronic respiratory failure with hypercapnia
J9690	Respiratory failure, unspecified, unspecified whether with hypoxia or hypercapnia
J9691	Respiratory failure, unspecified with hypoxia
J9692	Respiratory failure, unspecified with hypercapnia
J208	Acute bronchitis
J40	Bronchitis, not otherwise specified
J22	Lower respiratory infection
J988	Respiratory infection, not otherwise specified
J80	Acute respiratory distress syndrome (ARDS)
Z20828	Contact with and (suspected) exposure to other viral communicable diseases
J129	Viral pneumonia, unspecified
J189	Pneumonia, unspecified organism
J188	Other pneumonia, unspecified organism
B3324	Viral cardiomyopathy
I469	Cardiac arrest, cause unspecified
N179	Acute kidney failure, unspecified
R6520	Severe sepsis without septic shock
R6521	Septic shock

MS-DRG grouper changes

CMS has edited the Medicare Severity-Diagnosis Related Group (MS-DRG) grouper to use the new ICD-10 diagnosis code, U071, for COVID-19.⁴ CMS assigned the U071 diagnosis code to DRGs 177, 178, and 179 and added it to the major condition list for DRGs 791, 793, 974-976, and also to the major complications or comorbidities (MCC) list.⁴ CMS coding guidance states that if diagnosis code U071, COVID-19 is reported as a principal diagnosis, it will only exclude itself from acting as a MCC under the complication or comorbidity (CC) exclusions list.⁴ These assignments have been incorporated into the MS-DRG grouper version effective April 1, 2020.

The actual MS-DRG assignment for hospitalized COVID-19 patients, just as for patients with other conditions, will depend on the diagnosis and procedures codes reported on the inpatient claims, including the order of diagnosis codes which should be reported based on ICD-10-CM coding guidelines.¹

Because COVID-19 patients may have severe disease and complex, lengthy hospitalizations, it will take time to understand the MS-DRGs that are actually assigned to these cases as claims data begin to flow in. The MS-DRG distribution of COVID-19 patients is currently unknown.

TRACKING ICU AND VENTILATOR UTILIZATION

Care of COVID-19 patients may require admission to intensive care units (ICUs), and some patients may require respiratory support on ventilators.

Total ICU utilization can be identified by charges under the revenue codes specified in Table 4 for ICU services.⁵ These track all ICU utilization, not just care related to COVID-19.

TABLE 4: INTENSIVE CARE CODES

Revenue Code	Description
0200	Intensive Care – General Classification
0201	Intensive Care – Surgical
0202	Intensive Care – Medical
0203	Intensive Care – Pediatric
0209	Intensive Care – Other Intensive Care

Ventilator utilization

The ICD-10 procedure codes for intubation and respiratory ventilation shown in Table 5 and reported on inpatient facility claims may be used to identify mechanically ventilated patients.

TABLE 5: INTUBATION AND VENTILATION CODES

ICD-10 Code	Description
0BH13EZ	Insertion of Endotracheal Airway into Trachea, Percutaneous Approach
0BH17EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening
0BH18EZ	Insertion of Endotracheal Airway into Trachea, Via Natural or Artificial Opening Endoscopic
5A1935Z	Respiratory Ventilation, Less than 24 Consecutive Hours
5A1945Z	Respiratory Ventilation, 24-96 Consecutive Hours
5A1955Z	Respiratory Ventilation, Greater than 96 Consecutive Hours

HCPCS codes for ventilation management cannot reliably be used to identify patients receiving mechanical ventilation because they are usually not billed separately during periods of ICU care. Under correct coding rules, they are bundled into daily evaluation/management (E/M) or critical care services.^{24, 25}

2. Setting up analytic templates to measure trends in cost and utilization

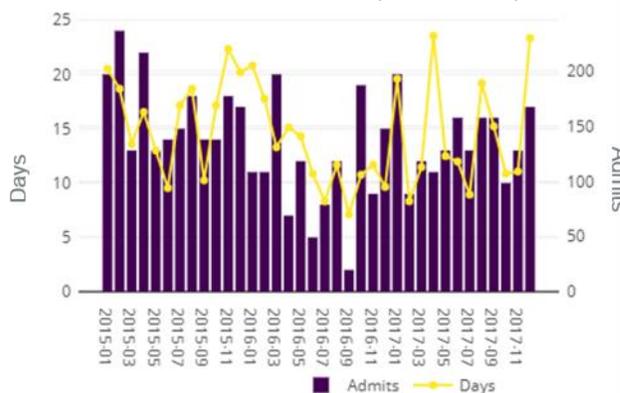
ANALYTIC APPLICATIONS

The coding resources described in the previous section can be used to build data query templates, or dashboards, that can efficiently provide a visualization of trends in utilization, unit cost, and types of services provided during the COVID-19 pandemic.

Analytic summaries can measure utilization, billed/allowed/paid dollars, or relative value units, as well as professional services incurred during inpatient stays. Claims can be filtered to the types of services of interest. Other criteria may be applied to focus on services with certain diagnosis codes.

Figure 3 is an illustrative example of a dashboard to monitor ICU utilization, based on charges for the ICU revenue codes described earlier. Measures like admits and length of stay can be tracked over time, providing a graphical view of trends and results. Months refer to recurring data refreshes.

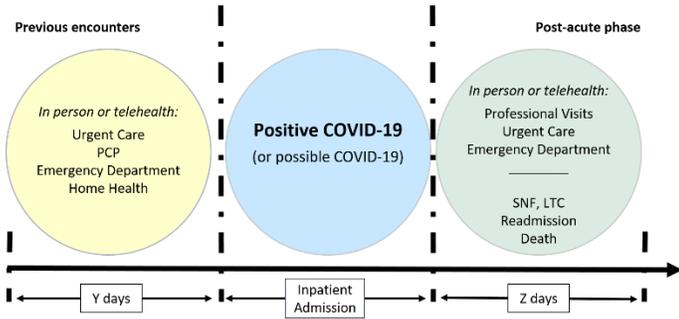
FIGURE 3: ICU UTILIZATION DASHBOARD (ILLUSTRATIVE)



EPISODES OF CARE RELATED TO COVID-19

Episodes of care can be constructed to view all of the clinical services and other transactions throughout the care journey that represents a member’s experience of the illness. For example, if the event of interest is an inpatient hospitalization for treatment of COVID-19, the hypothetical episode for a member (patient) might be considered as Y days before admission (e.g., Y = -14) to Z days after discharge (e.g., Z = 30).

FIGURE 4: INITIAL CONCEPTUAL OUTLINE OF AN EPISODE OF CARE AROUND A COVID-19 HOSPITALIZATION



The CDC notes that symptoms may appear within 2 to 14 days after exposure, based on the incubation period of MERS-CoV coronaviruses.²⁶ The long-term effects of COVID-19 are not yet known. As more information comes in from actual experience in the United States and in other countries, the typical duration and definition of an episode of care related to COVID-19 disease of varying severity will become clearer.

3. Identifying services likely to have significant changes in utilization during the COVID-19 pandemic

Due to federal, state, and local orders, guidance and recommendations, social distancing, and provider capacity limitations, dramatic shifts in utilization of healthcare services are occurring. In particular, elective and non-essential surgical procedures are being deferred, and routine care visits are being deferred or moving to telehealth or communication technology-based services (CTBS). The utilization of ancillary services associated with many of these visits is also affected.

ELECTIVE PROCEDURES

The utilization of some elective or non-essential procedures is likely to be decreased for a period of time. On March 18, 2020, CMS recommended postponing all non-essential planned surgeries and procedures that can be deferred, including dental, until further notice, in order to conserve critical resources like personal protective equipment (PPE) and ventilators and to minimize potential exposure of patients and staff to the SARS-CoV-2 virus.²⁷ Most states have also issued specific guidance on postponing elective medical, surgical, and dental procedures and other non-essential routine services.²⁸

CMS provided a decision support framework to assist health systems in considering resource conservation, in addition to the clinical situation and the urgency of the planned procedure.²⁹ Tiers labelled "a" include procedures provided to healthy patients, and

tiers labelled "b" include procedures provided to unhealthy patients.

- Procedures in Tier 1a and 1b are characterized as low acuity surgery; action “Postpone surgery / procedure” in hospital outpatient departments (HOPDs), ambulatory surgical centers (ASCs), and hospitals with low or no COVID-19 census.
- Procedures in Tier 2a and 2b are characterized as intermediate acuity surgery; action “Consider postponing surgery / procedure” in HOPDs, ASCs, and hospitals with low or no COVID-19 census.
- Procedures in CMS Tier 3a and 3b categories are characterized as high acuity surgery; action “Do not postpone” in hospitals.

Tiers 3a and 3b include procedures related to most cancers, trauma, transplants, cardiac conditions with symptoms, and limb-threatening vascular conditions.

Table 6 provides a non-exhaustive list of potentially deferrable procedures and surgeries. Note that individual procedures in Tiers 1 and 2 are not always elective.

TABLE 6: EXAMPLES OF ELECTIVE SURGICAL PROCEDURES

CMS Tier 1	Adult Surgery or Procedure
Tier 1a or 1b: Low acuity surgery / healthy or unhealthy patient – Postpone	Colonoscopy, sigmoidoscopy
	Cataract surgery
	Carpal tunnel release
	Arthroscopy
	Cochlear implant
	Cosmetic surgical procedures
	Breast implants
	Dental surgery
	Upper gastrointestinal endoscopy
	Hernia repairs
Gallstone removal	
CMS Tier 2	Adult Surgery or Procedure
Tier 2a or 2b: Intermediate acuity surgery / healthy or unhealthy patient – Consider postponing	Knee arthroplasty, and other knee surgery
	Hip arthroplasty, and other hip surgery
	Shoulder arthroplasty, and other shoulder surgery
	Spine surgery, e.g. nerve decompression surgery, spinal fusion
	Kidney stone removal
	Elective angioplasty
	Gastric bypass
	Low risk cancer

The list above is a partial set of examples, based on initial CMS guidance on March 23, 2020, and updated CMS guidance on April 7, 2020.

The American College of Surgeons (ACS) published a set of triage guidelines for elective surgical procedures. These guidelines address a more comprehensive set of procedures by surgical subspecialty.³⁰

As of April 19, 2020, CMS has given healthcare facilities flexibility in restarting care currently being postponed, including certain surgeries and procedures, for patients without symptoms of COVID-19, in regions with low incidence of COVID-19, depending on consideration of adequate facilities, workforce, testing and supplies; and adequate workforce across phases of care (availability of clinicians, nurses, anesthesia, pharmacy, imaging, pathology support, and post-acute care).³¹

TELEHEALTH SERVICES

On March 6, 2020, Congress passed the Coronavirus Preparedness and Response Supplemental Appropriations Act, which lifts certain existing restrictions on CMS telehealth coverage and payment so that at-risk Medicare beneficiaries can remain in their homes and receive care through telehealth services, thereby minimizing their risk of exposure to COVID-19.³² Under this law, qualified healthcare professionals may bill Medicare fee-for-service (FFS) under a waiver for telehealth services provided in any healthcare facility or the beneficiary's home during the current coronavirus public health emergency. This applies to services for all healthcare conditions, not just care related to COVID-19.³³

During the coronavirus public health emergency CMS has also temporarily expanded the services that may be provided by telehealth to include emergency department, initial hospital care, home visits, physical and occupational therapy, and licensed clinical social worker services. Limitations on the frequency of telehealth services have also been waived.³⁴

Historically, for Medicare telehealth services CMS has specified that the claim should report the designated place-of-service (POS) code 02 (Telehealth) to indicate the professional service was provided by telehealth from a distant site.³⁵ As of March 1, 2020, and for the duration of the coronavirus public health emergency, CMS's instructions have changed to specify that providers should report the POS code equal to what it would have been had the service been furnished in person and HCPCS modifier 95 (Synchronous telemedicine service rendered via a real-time interactive audio and video telecommunications system) to indicate that the service rendered was performed by telehealth.³³

A number of commercial and other health insurance providers are waiving cost-sharing for telehealth services and expanding

telehealth programs, as well as waiving prior authorization for COVID-19 testing or treatment.³⁶

Similarly, Medicare Advantage (MA) plans have been given the flexibility during the COVID-19 outbreak to expand their telemedicine programs and provide beneficiaries with access to telehealth from any site, including their homes, beyond the benefit packages approved by CMS. CMS is also allowing MA plans to waive or reduce cost-sharing for COVID-19 lab tests, telehealth benefits, and other services, providing that the MA plan waives or reduces cost-sharing for all similarly situated plan enrollees on a uniform basis. Finally, under MA flexibilities absent a public health emergency, MA plans may choose to waive prior authorization requirements.³⁷

COMMUNICATION TECHNOLOGY-BASED SERVICES

CTBS for established patients, such as e-visits and short virtual check-ins, involve communication between the patient and their provider through an online patient portal.³⁸

CTBS is not subject to the Medicare telehealth restrictions regarding originating site and rural geography, regardless of the coronavirus public health emergency. However, the availability of CTBS under Medicare FFS has historically been limited by various factors, such as the requirement for an existing patient-provider relationship prior to the service and uncertainty about whether CTBS can be billed by practitioners who cannot bill for E/M services.

The interim final rule with comment (IFC) issued by CMS on March 30, 2020,³⁹ authorizes CTBS for both new and established Medicare patients during the coronavirus public health emergency. CMS also clarified that CTBS can be provided as clinical psychologist services, licensed clinical social worker services, physical therapist services, occupational therapist services, and speech language pathologist services. Table 7 provides a non-exhaustive list of codes for CTBS, as examples.⁴⁰

TABLE 7: EXAMPLES OF CTBS CODES

CPT or HCPCS Codes and Description
Communication Technology-Based Services, G2010, G2012, G2061, G2062, G2063, 99421, 99422, 99423
Non-physician telephone services, 98966, 98967, 98968
Online assessment, management services by non-physician, 98969
Office or other outpatient consultations, 99241-99245
Prolonged Service Office Visit, 99354-99355
Prolonged Service Office Visit, 99358, 99359
Telephone Evaluation and Management, 99441-43, G2010
Non-face-to-face on-line Medical Evaluation, 99444

As outlined in Section 2 of this paper above, “Setting up analytic templates to measure trends in cost and utilization”, the administrative codes above can be used to identify telehealth and CTBS services and build analytic templates that facilitate analyses of their costs and utilization.

Figure 5 provides an illustration of how telehealth and CTBS utilization can be identified and tracked over time. Months refer to recurring data refreshes.

FIGURE 5: TELEHEALTH AND CTBS DASHBOARD (ILLUSTRATIVE)



Conclusion

This brief summarizes analytic resources, methodologies, and key considerations that may serve as a starting point to help healthcare organizations quantify and manage the financial and operational impacts of the COVID-19 pandemic.

The information presented here is current as of April 19, 2020. The healthcare landscape surrounding COVID-19 is rapidly changing nationally and locally as understanding of COVID-19 grows through clinical and laboratory experience, policies evolve, legislation is passed and regulations are issued, and new research findings become available. COVID-19 disease in the United States is having widespread impacts on the majority of healthcare services.

For additional resources, analytic solutions, and related updates, please visit medinsight.milliman.com.

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ENDNOTES

- 1 CDC. ICD-10-CM Official Guidelines for Coding and Reporting. FY 2020. Retrieved March 26, 2020 from https://www.cdc.gov/nchs/data/icd/10cmguidelines-FY2020_final.pdf.
- 2 CMS. April 2020 Alpha-Numeric HCPCS File – Updated 03/30/2020. HCPCS Quarterly Update. Accessed on April 7, 2020 from <https://www.cms.gov/Medicare/Coding/HCPCSReleaseCodeSets/HCPCS-Quarterly-Update>.
- 3 American Medical Association (AMA). Current Procedural Terminology. Accessed on March 22 from <https://www.ama-assn.org/amaone/cpt-current-procedural-terminology>.
- 4 CMS. ICD-10 MS DRGs Version 37.1 R1 Effective April 1, 2020. Retrieved March 26, 2020 from <https://edit.cms.gov/files/document/icd-10-ms-drgs-version-371-r1-effective-april-1-2020-updated-march-23-2020.pdf>.
- 5 National Uniform Billing Committee. NUBC Official UB-04 Data Specifications Manual. 2020. See <https://www.nubc.org/>.
- 6 CDC. National Vital Statistics System, National Center for Health Statistics. See https://www.cdc.gov/nchs/nvss/mortality_public_use_data.htm.
- 7 Centers for Disease Control and Prevention. How COVID-19 Spreads. Retrieved March 20, 2020 from <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/how-covid-spreads.html>
- 8 WHO Director-General's opening remarks at the media briefing on COVID-19 - 11 March 2020. *World Health Organization*. March 11, 2020. Retrieved March 20, 2020 from <https://www.who.int/dg/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---11-march-2020>
- 9 Wang, M-D & Jolly, AM. Changing virulence of the SARS virus: the epidemiological evidence. *Bulletin of the World Health Organization*; 2020; 82 (7): 547 - 548. Retrieved on April 4, 2020 from <https://apps.who.int/iris/handle/10665/269194>
- 10 Amer H, et al. Unusual presentation of Middle East respiratory syndrome coronavirus leading to a large outbreak in Riyadh during 2017. *American Journal of Infection Control*; September 1, 2018; 46(9):1022-1025. Retrieved March 24 from <https://doi.org/10.1016/j.ajic.2018.02.023>
- 11 Peeri NC, et al. The SARS, MERS and novel coronavirus (COVID-19) epidemics, the newest and biggest global health threats: what lessons have we learned? *International Journal of Epidemiology*; February 22, 2020; 0(0):1-10. doi:10.1093/ije/dyaa033. Accessed March 23, 2020 from <https://academic.oup.com/ije/article/doi/10.1093/ije/dyaa033/5748175>
- 12 Cascella M, Rajnik M, et al. Features, Evaluation and Treatment Coronavirus (COVID-19). StatPearls Publishing, LLC. March 20, 2020. Retrieved March 22, 2020 from <https://www.ncbi.nlm.nih.gov/books/NBK554776/>.
- 13 Hao Q, Wu H & Wang Q. Difficulties in False Negative Diagnosis of Coronavirus Disease 2019: A Case Report. Pre-print published online Research Square March 13, 2020. Retrieved March 23, 2020 from <http://doi.org/10.21203/rs.3.rs-17319/v1>.
- 14 World Health Organization. Laboratory testing for coronavirus disease (COVID-19) in suspected human cases: interim guidance, 19 March 2020. Retrieved March 23, 2020 from <https://apps.who.int/iris/handle/10665/331501>.
- 15 O'Reilly, KB. New CPT code for COVID-19 testing: What you should know. American Medical Association. Published March 16, 2020. Retrieved March 23 from <https://www.ama-assn.org/delivering-care/public-health/new-cpt-code-covid-19-testing-what-you-should-know>.
- 16 CMS. Quarterly Update for Clinical Laboratory Fee Schedule and Laboratory Services Subject to Reasonable Charge Payment. Medicare Learning Network. Released April 3, 2020, and updated April 6, 2020. Accessed April 15, 2020 from <https://www.cms.gov/files/document/mm11681.pdf>.
- 17 American Medical Association (AMA). Special Edition: April Update. CPT Assistant Official source for CPT coding guidance. Retrieved April 15 from <https://www.ama-assn.org/system/files/2020-04/cpt-assistant-guide-coronavirus-april-2020.pdf>.
- 18 CDC. ICD-10-CM Official Coding and Reporting Guidelines April 1, 2020 through September 30, 2020. Retrieved March 23, 2020 from <https://www.cdc.gov/nchs/data/icd/COVID-19-guidelines-final.pdf>.
- 19 ICD-10-CM Official Coding Guidelines – Supplement - Coding encounters related to COVID-19 Coronavirus Outbreak - Effective: February 20, 2020. Retrieved March 21, 2020, from <https://www.cdc.gov/nchs/data/icd/ICD-10-CM-Official-Coding-Guidance-Interim-Advice-coronavirus-feb-20-2020.pdf>.
- 20 Arentz M, Yim E, Klaff L, et al. Characteristics and Outcomes of 21 Critically Ill Patients With COVID-19 in Washington State. *JAMA*. doi:10.1001/jama.2020.4326. Published online March 19, 2020. Retrieved March 22, 2020 from <https://jamanetwork.com/journals/jama/fullarticle/2763485>.
- 21 Guan W, Ni Z, Hu Y, et al. Clinical Characteristics of Coronavirus Disease 2019 in China. *New England Journal of Medicine*. DOI: 10.1056/NEJMoa2002032. Published February 28, 2020; updated March 6, 2020. Retrieved March 21, 2020 from <https://www.nejm.org/doi/pdf/10.1056/NEJMoa2002032>.
- 22 Mao L, Jin H, Wang M, et al. Neurologic Manifestations of Hospitalized Patients With Coronavirus Disease 2019 in Wuhan, China. *JAMA Neurol*. doi:10.1001/jamaneurol.2020.1127. Published online April 10, 2020. Retrieved April 15, 2020 from <https://jamanetwork.com/journals/jamaneurology/fullarticle/2764549>.
- 23 McMichael, TM, Currie DW, Clark S, et al. Epidemiology of Covid-19 in a Long-Term Care Facility in King County, Washington. *New England Journal of Medicine*. Published March 27, 2020. DOI: 10.1056/NEJMoa2005412 Retrieved on April 10, 2020 from <https://www.nejm.org/doi/full/10.1056/NEJMoa2005412>.
- 24 CMS. Critical Care Services and Other Procedures Provided on the Same Day by the Same Physician as Critical Care Codes 99291 – 99292. CMS Manual System. Pub 100-04 Medicare Claims Processing, Transmittal R2997CP. July 2014. Retrieved on March 26, 2020 from <https://www.cms.gov/Regulations-and-Guidance/Guidance/Transmittals/downloads/R2997CP.pdf>.
- 25 American Association for Respiratory Care. Coding Guidelines for Certain Respiratory Care Services. January 2018. Retrieved on March 26, 2020 from <https://www.aarc.org/wp-content/uploads/2014/10/aarc-coding-guidelines.pdf>.
- 26 Centers for Disease Control and Prevention. Symptoms of Coronavirus. Updated March 20, 2020. Retrieved April 3, 2020, from <https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>.
- 27 CMS. Non-Emergent, Elective Medical Services, and Treatment Recommendations. Updated April 7, 2020. Retrieved April 8, 2020, from <https://www.cms.gov/files/document/31820-cms-adult-elective-surgery-and-procedures-recommendations.pdf>.
- 28 Ambulatory Surgery Center Association (ASCA). State Guidance on Elective Surgeries. ASCA Resource Center. Updated April 13, 2020. Retrieved April 15, 2020, from <https://www.ascassociation.org/asca/resourcecenter/latestnewsresourcecenter/covid-19/covid-19-state>.
- 29 CMS. CMS Adult Elective Surgery and Procedures Recommendations: Limit all non-essential planned surgeries and procedures, including dental, until further notice. Updated April 7, 2020. Retrieved on April 2 and April 10, 2020, from <https://www.cms.gov/files/document/covid-elective-surgery-recommendations.pdf>.
- 30 American College of Surgeons. COVID-19: Elective Case Triage Guidelines for Surgical Care. Last issued March 24, 2020. Retrieved April 15, 2020, from <https://www.facs.org/covid-19/clinical-guidance/elective-case>.
- 31 CMS. Re-opening Facilities to Provide Non-Emergent Non-COVID-19 Healthcare: Phase I. Published April 19, 2020. Retrieved April 19, 2020, from <https://www.cms.gov/files/document/covid-flexibility-reopen-essential-non-covid-services.pdf>.
- 32 American Medical Association. CARES Act: AMA COVID-19 pandemic telehealth fact sheet. Updated April 14, 2020. Retrieved April 15, 2020, from <https://www.ama-assn.org/delivering-care/public-health/cares-act-ama-covid-19-pandemic-telehealth-fact-sheet>.
- 33 CMS. Billing for Professional Telehealth Distant Site Services During the Public Health Emergency — Revised. Special Edition April 3, 2020. Retrieved April 16, 2020, from https://www.cms.gov/outreach-and-education/outreachffsprovpartprogprovider-partnership-email-archive/2020-04-03-mlnc-se#_Toc36815181
- 34 CMS. Covered Telehealth Services for PHE for the COVID-19 pandemic, effective March 1, 2020. Updated March 30, 2020. Retrieved March 15, 2020, from <https://www.cms.gov/Medicare/Medicare-General-Information/Telehealth/Telehealth-Codes>.
- 35 CMS. Medicare Claims Processing Manual. Chapter 12 - Physicians/Nonphysician Practitioners. (Rev. 4431, 11-01-19) Retrieved April 15, 2020, from <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Downloads/clm104c12.pdf>.

³⁶ America's Health Insurance Plans (AHIP). Answering the Call: Health Insurance Providers Act Swiftly as Part of the COVID-19 Solution. April 2020. Retrieved April 16, 2020, from <https://www.ahip.org/wp-content/uploads/Health-Insurance-Providers-Act-Swiftly-as-Part-of-the-COVID-19-Solution.pdf>.

³⁷ CMS. Information Related to Coronavirus Disease 2019 - COVID-19. Medicare Advantage Organizations. Published on March 10, 2020. Retrieved April 16, 2020, from <https://www.cms.gov/files/document/hpms-memo-covid-information-plans.pdf>.

³⁸ CMS. Medicare Telemedicine Healthcare Provider Fact Sheet. Medicare coverage and payment of virtual services. Published March 17, 2020. Retrieved April 15, 2020, from <https://www.cms.gov/newsroom/fact-sheets/medicare-telemedicine-health-care-provider-fact-sheet>.

³⁹ CMS. Policy and Regulatory Revisions in Response to the COVID-19 Public Health Emergency. Interim Final Rule with Comment Period (IFC). CMS-1744-IFC. Issued on March 30, 2020, effective March 1, 2020. Retrieved April 2, 2020, from <https://www.cms.gov/files/document/covid-final-ifc.pdf>.

⁴⁰ COVID-19 Frequently Asked Questions (FAQs) on Medicare Fee-for-Service (FFS) Billing. April 9, 2020. Retrieved April 15, 2020, from https://www.cms.gov/files/document/03092020-covid-19-faqs-508.pdf?_cldee=anVkeUBqdWR5d2lsaGikZS5jb20%3D&recipientid=contact-4d01407ec995e011ac48005056834d9b-217e32a7828a46239f5458c85b12912e&esid=a37922dd-737a-ea11-80e5-000d3a0f728a.