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Empowering Better Health

CDI's Top Twenty Tips

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Inspiring CDI Excellence

Acute Tubular Necrosis

Definition:

- Acute Tubular Necrosis (ATN) involves the death of tubular epithelial cells that form the renal tubules.
- The etiology is intrarenal, resulting from prolonged or severe ischemia.
- Common causes of ATN include hypotension, sepsis, IV contrast and use of nephrotoxic drugs (statins, cytotoxic drugs, ethylene glycol, NSAIDS, etc.).
- ATN is one of the most common causes of Acute Kidney Injury (AKI).

Diagnostic Criteria:

- Meets criteria for AKI, creatinine levels return to baseline after > 72 hours of treatment with IV fluids, urine sodium concentration > 40 mEq/L (normal < 20 mEq/L).
- Generally, urinalysis will show muddy brown casts, but absence of casts does not rule out ATN.
- ATN is suspected when AKI is diagnosed after an apparent contributing event i.e., contrast administration.
- Observed in about 45% of ICU patients and mortality rate as high as 62%.
- If the cause of the AKI is prerenal, it will usually respond to IV fluids quickly if it is ATN there may not be a noticeable improvement.
- For ATN, the treatment is supportive and aimed at the cause.
- For otherwise healthy patients, the serum creatinine generally returns to normal in 1 to 3 weeks.

CDI Practice Considerations:

- ATN (N17.0) is recognized as a Major Comorbidity (MCC) whereas AKI (N17.9) is a Complication/Comorbidity (CC).
- ATN is commonly under-diagnosed and under-documented, creating frequent query opportunity.
- The distinction between prerenal AKI and ATN is based on the clinical circumstances leading to AKI and the speed of the creatinine response to IV fluids.
- Providers may document Contrast Induced Nephropathy (CIN) in patients with contract induced AKI thinking it also includes ATN.
- CIN codes to N14.1 and does not provide a CC or MCC.
- ATN may lead to electrolyte abnormalities such as hyperkalemia and hyponatremia.

Query Opportunity:

- When CIN or AKI is documented, review clinical indicators for diagnostic support and query as needed to clarify AKI due to ATN.
- If ATN is diagnosed with return to baseline before the 72-hour mark or the patient LOS is less than 3 days, a query for validity likely should be sent.

Anemia

Definition:

- Anemia is a condition in which the number of red blood cells or the hemoglobin (Hgb) concentration within them is lower than normal.
- Common types of anemia: Iron deficiency, Aplastic, Hemolytic, and Acute blood loss, and Chronic blood loss
- Hb is needed to carry oxygen and if you have too few or abnormal red blood cells, or not enough hemoglobin, there will be a decreased capacity of blood to carry oxygen to the body's tissues. The most common nutritional cause of anemia is iron deficiency, although deficiencies in folate, vitamins B12 and A are also important causes.
- Common causes include GI bleed, trauma, surgery, urologic, gynecologic, obstetrical, and retroperitoneal.

Diagnostic Criteria:

- Hgb for men < 13 gm/dl and women < 12 gm/dl
- Pregnancy < 11 gm/dl
- Children over the age of 14 same as adult values
- Children 6 months – 14 years < 11.0 to 12.0 varies based on age
- Symptoms will include fatigue, weakness, dizziness, Diaphoresis, Tachycardia, paleness, Tachypnea, and shortness of breath

CDI Practice Considerations:

- Currently there are no specific criteria established as to what makes blood loss anemia significant.
- Sequencing anemia or GI bleed as a principal diagnosis should be based on the focus of care and treatment.
- Acute blood loss anemia is not a complication that will impact CMS quality reporting. However, blood loss documented as post operative, or post procedural may lead to a complication code. If the blood loss is inherent or anticipated, CDI should work with educating providers on proper documentation.

Query Opportunity:

- Evaluate measures that suggest a significant drop in Hgb that would warrant a concern would be a transfusion, development of new anemia symptoms, increased complexity of patient needs on current encounter and more frequent monitoring of Hgb and a drop of 1 to 2 gm/dl. A transfusion is not required for a diagnosis of anemia.

Antimicrobial Resistance

Definition:

- Antimicrobial Resistance (AMR) is the resistance of micro-organisms like bacteria, viruses, fungi, and parasites to one or more classes of antimicrobial drugs.
- Antimicrobial Resistance (AMR) can lead to the following:
    - Infections that last longer,
    - lengthen hospital stays, and are more costly to treat,
    - a higher risk of disease spreading,
    - a greater chance of fatality due to infection,
- A natural process that happens over time through genetic changes in pathogens.
- AMR is a top global public health threat and responsible for an estimated 1.27 million global deaths in 2019.

Diagnostic Criteria:

- Definitively diagnosed using culture and sensitivity/susceptibility testing. Sensitivity testing demonstrates resistance to one or more drug classes.
- Sensitivity/Susceptibility results read as: (S) Susceptible/sensitive - the organism is inhibited by the drug using the usual dosage, (I) Intermediate – the organism is inhibited, but only at the maximum recommended dosage, (R) Resistant – the organism is resistant to the achievable serum drug levels, (SD) Sensitive – dose dependent, (NI) No interpretation.

CDI Practice Considerations:

- High-risk AMR circumstances may include Immunosuppression of any cause, indwelling catheters, ventilator status or recently ventilated, recent hospitalization, and recent antibiotic use.

Query Opportunity:

- Consider querying to link resistance to the infection.
- If clinically supported, a query may be needed to clarify the treatment failure due to resistance vs lack of improvement from another cause.

Atrial Fibrillation (AF)

Definition:

- Paroxysmal AF: Episodes terminate either spontaneously or with treatment within 7 days; may recur.
- Persistent AF: AF is continuous and lasts > 7 days, fails to terminate spontaneously.
- Long-standing Persistent AF: Continuous AF lasts > 12 months (due to either failure of initiation pharmacological intervention or failure of cardioversion).
- Permanent AF: Rythm is unresponsive, so decision made not to peruse further treatments attempted to restore or maintain NSR.

Diagnostic Criteria:

- Risk factors include the following:
    - Advanced age, underlying heart/lung disease (valvular/structural/ischemic heart disease, CAD, asthma, COPD, OSA), endocrine disorders (diabetes/hyperthyroidism), smoker, increased alcohol consumption, illicit drug use, hyperlipidemia, hypertension, and congenital heart disease.
    - Patients may describe shortness of breath, general fatigue, nausea, dizziness, chest pain, rapid heart rate, or lower extremity swelling.
    - ECG demonstrates narrow complex 'irregularly irregular' pattern without the presence of p-waves.

CDI Practice Considerations:

- Atrial fibrillation is the most common type of cardiac arrhythmia, making it a common comorbidity. Review the record closely, querying when clinical indicators support the specific type of atrial fibrillation.
- Long-standing persistent, other persistent, chronic, and permanent are recognized as CC's while unspecified and paroxysmal are not given CC status.
- Review for various body site locations for embolism as atrial fibrillation can lead to thrombus formation, which can dislodge, embolizing at various body locations, the most common being the brain (CVA).
- Review for other common comorbidities, which include heart failure (CC if type specified as systolic/diastolic, and MCC when type specified with acuity of acute or acute on chronic) and complications associated with anticoagulation, such as hemorrhagic disorders due to intrinsic circulating anticoagulants (CC).
- Note, only assign one code for the specific type of atrial fibrillation.
- Chronic atrial fibrillation, unspecified (I48.20) may refer to any persistent, longstanding persistent, or permanent atrial fibrillation. However, in clinical practice, use of one of the more specific descriptive terms is preferred over the use of the nonspecific term chronic AF.
- Review the facility's approved abbreviation list as 'AF' could mean atrial fibrillation or atrial flutter, which map to different ICD-10 codes potentially impacting DRG assignment.
- If the patient is on CURRENT long-term coagulation therapy, code the atrial fibrillation as current. If the patient has a PMH of atrial fibrillation which has resolved and is no longer under treatment, do not code.
    - Example: patients have had previous cardioversion, ablation and/or MAZE procedure and are no longer under treatment, do not code.
    - Example: patients have had previous cardioversion, ablation and/or MAZE procedure and remains and/or is currently on medication for atrial fibrillation, the atrial fibrillation should be coded.

Query Opportunity:

- Right heart strain can lead to atrial fibrillation, review the record closely for clinical indicators supportive of a pulmonary embolism, querying when appropriate.
- Review MAR Summary's and home med list carefully, as treatment in the form of rate control [beta-blockers (e.g. metoprolol), calcium-channel blockers (e.g. diltiazem/verapamil), digoxin etc.] and/or rhythm control [antiarrhythmic (e.g. amiodarone)] may provide clinical indicator support for the different types of atrial fibrillation, query as necessary.

Cerebral Edema and Brain Compression

Definition:

- Cerebral Edema Definition:
  - Swelling of the brain, which can result from a variety of derangements that can stem from trauma, hypoxia, infection, CVA, intracerebral hemorrhage, metabolic derangements, hepatitis, Reye syndrome, carbon monoxide poisoning, lead poisoning, high altitude, acute hypertension, or tumors.
- Brain Compression Definition:
  - Increased pressure pushing on the brain causing displacement that can lead to herniation.
- Brain Herniation Definition:
  - Occurs when increased intracranial pressure causes abnormal protrusion of brain tissue through openings in rigid intracranial barriers (tentorial notch, falx cerebri, foramen magnum).
  - Classified based on the structure through which tissue is herniated.
  - Types include trans tentorial (uncal), subfalcine, central, upward trans tentorial or tonsillar.
  - Common etiologies include, but are not limited to, traumatic epidural/subdural hematoma, malignant infarction, tumors, infections, hydrocephalus, diffuse subarachnoid hemorrhage, pneumocephalus (traumatic or postoperative), CSF over drainage, metabolic-hepatic encephalopathy, contusion, or intracerebral hemorrhage.

Diagnostic Criteria:

- Brain CT and/or MRI will confirm the presence of cerebral edema, compression, and/or herniation. Brain herniation signs/symptoms can be pronounced more depending on the degree of herniation.
- Cerebral edema can be asymptomatic, only seen on imaging, or cause life-threatening complications, varying widely depending on the location/extent of the cerebral edema.
- Signs and symptoms can include visual disturbances, seizures, sensory changes, diplopia, headaches, N/V, lethargy, AMS/confusion, respiratory irregularities, fixed unequal pupils, ataxia to abnormal posturing, coma and even death.

CDI Practice Considerations:

- Review documentation (CT/MRI findings) to identify the cause of cerebral edema, brain compression, or herniation, noting trauma and root etiology. Clinically validate the presence of cerebral edema and brain compression, particularly for MS-DRG assignment. Distinguish between incidental findings and clinically significant edema, following ICD-10 guidelines:
  - Minor localized edema surrounding a lesion identified on CT or MRI can be an intrinsic finding associated with the underlying etiology.
  - Ensure the cerebral edema is clinically significant or identified as generalized brain swelling and meeting the definition of a secondary diagnosis per ICD-10-CM Official Coding Guidelines
  - It is inappropriate to report an incidental finding from a radiology report if it is unrelated to the signs, symptoms, or conditions that led to the test. The provider must clarify that the finding is clinically significant and related to the visit for it to be coded.
- Check for related comorbidities such as coma, brain death, sepsis, acute hypoxic respiratory failure, and other system failures.
- Treatment focuses on preventing injury and addressing the underlying cause. Examine nursing assessments closely when reviewing clinical indicator support, specifically noting Glasgow Coma Scale (GCS) scores, National Institute of Health Stroke Scale (NIHSS) scores and, if applicable, Intracranial Pressure (ICP) monitoring.

Query Opportunity:

- Query for terms indicating brain compression, like ventricular, cisternal and sulcal effacement, uncal deviation, shift of midline structures and mass effect. Follow mass effect closely including treatment provided as this may not equate to edema.
- Cerebral edema, brain compression, and brain herniation are not typically part of many non-traumatic brain conditions or traumatic brain injuries. Review the record carefully for supporting clinical indicators and query when needed. Accurately capturing these as comorbidities will reflect the patient's complexity and severity, potentially impacting MS-DRG assignment.
- Query may be needed if a radiology report identifies cerebral edema or midline shift that is being treated and there is no mention of this in the providers' progress notes.

Coma

Definition:

- Coma: Deep state of unconsciousness where patients are unable to move or be aware of or respond to their surroundings with loss of thinking abilities however retain non-cognitive function and normal sleep patterns.

Diagnostic Criteria:

- A comprehensive neurological examination is required. A Glasgow Coma scale (GCS) score of 8 or less is generally accepted as diagnostic criteria supportive of the diagnosis of Coma.
- GCS is a widely adopted system to measure consciousness. It consists of three categories, with the highest score 15 indicating awake/alertness versus the lowest score of 3 indicating a severe coma.
    - Eye response score (score 1 – 4), Motor response (score 1 – 5), Verbal response (score 1 – 6).
- Additional diagnostic testing may be conducted to determine etiology and treatment modality. These may include:
    - Diagnostic imaging such as Head CT or Brain MRI – to identify structural intracranial disease.
    - Laboratory testing of blood, urine, CSF fluid – to identify a metabolic derangement such as electrolyte imbalances, infections, or the presence of toxins/poisons.
    - Electroencephalogram (EEG) - reviewing for seizures or epilepsy as potential cause.

CDI Practice Considerations:

- Review documentation for the etiology of the coma as well as potential complications or comorbidities.
- Etiology of Coma can include, but is not limited to: Traumatic Head Injury, Stroke, Oxygen depletion to brain (severe hypothermia or drowning), Infections (Encephalitis, meningitis), Toxic Substance (carbon monoxide poisoning, drug/alcohol overdose), Complication or an underlying disease process such as diabetes with blood glucose level too high or low, Repeated seizure.
- When reviewing coma patients, pay close attention to documentation opportunities for comorbidities associated with each body system. Some to keep in mind include:
    - Respiratory: Acute Respiratory Failure, Pneumonia, Kidney/Urinary Tract: UTI, Endocrine: Malnutrition, Musculoskeletal: Functional Quadriplegia, Skin: Pressure Injuries, Infection/Generalized: Sepsis.
- When all components are known, do not assign a code for the total GCS, as it is not designated CC/MCC status. Instead Reporting individual components are classified as MCC's shown in the following:

ICD-10 Code	ICD-10 Code Description
R40211-	Coma scale, eye open, never
R40212-	Coma scale, eyes open to pain
R40221-	Coma scale, best verbal response, none
R40222-	Coma scale, best verbal response, incomprehensible words
R40231-	Coma scale, best motor response, none
R40232-	Coma scale, best motor response, extension
R40234-	Coma scale, best motor response, flexion withdrawal

- Coma is classified as a MCC while persistent vegetative state is classified as a CC.
- Since the term 'unconsciousness' is assigned to coma, unspecified (R4020), a thorough review of the record needs to be completed, clinically validating the diagnosis. If the significance of the unconsciousness is unclear, query the provider.
- Code R40.20, unspecified coma, may be assigned in conjunction with codes for any medical condition, except for neonatal coma (P91.5) and coma in diabetes (E08 – E`3), in hepatic failure (K72 -) or nondiabetic hyperglycemia (E15).
    - Hepatitis A with hepatic coma (B150),
    - Acute hepatitis B with delta-agent with hepatic coma (B160),
    - Acute hepatitis B without delta-agent with hepatic coma (B162),
    - Acute hepatitis C with hepatic coma (B1711),
    - Unspecified viral hepatitis with hepatic coma (B190),

- Unspecified viral hepatitis B with hepatic coma (B1911),
- Unspecified viral hepatitis C with hepatic coma (B1921),
- Diabetes mellitus due to underlying condition with hyperosmolarity with coma (E0801) - when POA,
- Diabetes mellitus due to underlying condition with ketoacidosis with coma (E0811) - when POA,
- Diabetes mellitus due to underlying condition with hypoglycemia with coma (E08641),
- Drug or chemical induced diabetes mellitus with hyperosmolarity without nonketotic hyperglycemic hyperosmolar coma (E0900) - when POA,
- Drug or chemical induced diabetes mellitus with hyperosmolarity with coma (E0901) - when POA,
- Drug or chemical induced diabetes mellitus with hypoglycemia with coma (E09641),
- Type 1 diabetes mellitus with ketoacidosis with coma (E1011) - when POA,
- Type 1 diabetes mellitus with hypoglycemia with coma (E10641),
- Type 2 diabetes mellitus with hyperosmolarity with coma (E1101) - when POA,
- Type 2 diabetes mellitus with ketoacidosis with coma (E1111) - when POA,
- Type 2 diabetes mellitus with hypoglycemia with com a(E1164`),
- Other specified diabetes mellitus with hyperosmolarity with coma (E1301) - when POA,
- Other specified diabetes mellitus with ketoacidosis with coma (E1311) - when POA,
- Other specified diabetes mellitus with hypoglycemia with coma (E13641),
- Alcoholic hepatic failure with coma (K111),
- Acute and subacute hepatic failure with coma (K7201),
- Chronic hepatic failure with coma (K7211),
- Hepatic failure, unspecified with coma (K7291)

Query Opportunity:

- Terms that may be documented to describe a patient in coma include “unresponsive,” “obtunded,” “stupor,” “somnolent,” or “locked-in syndrome.” Review the record closely for clinical indicators and treatment, querying the provider for clarification when appropriate.
- GCS can be assigned based on documentation from non-providers (see ICD-10 Official Coding Guidelines 1.B.14 ‘Documentation by Clinicians Other than the Patient’s Provider’). However, the patient’s provider must document the actual diagnosis of coma and etiology. If there is conflicting medical record documentation, either from the same clinician or different clinicians, the patient’s attending provider should be queried for clarification.
- ICD-10 classifies several conditions as combination codes that contain ‘with coma’. Review the record closely for clinical indicators and treatment querying when appropriate as the following combinations codes are designated as MCC’s:

Cystic Fibrosis (CF)

Definition:

- Cystic Fibrosis is a hereditary disorder characterized by thick secretions in the lungs, pancreas, liver, intestine, and other organs resulting in multi-system disease.
- Median survival is approximately 50 years.

Diagnostic Criteria:

- Lab work:
    - Elevated immunoreactive trypsinogen (IRT) - released by the pancreas.
    - Sweat test – done at 2 weeks old-result >/= 60 mmol/L.
    - Clinical involvement in one or more organ systems.
    - About two percent will require DNA analysis for confirmation.
    - There is no cure for CF, but treatment can ease symptoms, reduce complications, and improve quality of life.
    - Pulmonary involvement occurs in 90% of patients who survive the neonatal period, and end stage lung disease is the principal cause of death.

CDI Practice Considerations:

- Review records for commonly associated organ system complications:
    - Pulmonary - bronchiectasis, sinusitis, bronchitis, recurrent pneumonia, pneumothorax, allergic bronchopulmonary aspergillosis, COPD. Common sputum colonization-pseudomonas, staph, and Hemophilus.
    - Gastrointestinal - meconium ileus (neonates/infants), intestinal obstruction, FTT, GERD, GI bleeding, biliary cirrhosis, cholelithiasis, liver disease distal intestinal obstruction syndrome (DIOS), a small intestine bacterial overgrowth (SIBO).
    - Pancreatic – pancreatic insufficiency with malabsorption and secondary insulin-dependent CF-related diabetes, pancreatis.
- Treatment can be a clue for complications or manifestations. It is usually directed at organ involvement.
    - Chronic antibiotics, Bronchodilator therapy; inhales Pulmozyme which liquefies sputum, Hypertonic saline nebulizer, Pancreatic enzyme replacement therapy (PERT), Insulin for CF-related diabetes, Treatment for GERD, CFTR modulator therapy, which restores deficient CF-protein function. Used in certain CF genotypes. Medications include Elexacaftor, Tezacaftor, and Ivacaftor.

Query Opportunity:

- Query to specify types of cystic fibrosis such as pulmonary manifestations, gastrointestinal manifestations, or other.
- If clinically supported, clarify the presence of acute pulmonary exacerbation of cystic fibrosis if not documented.
- Malnutrition is common in cystic fibrosis patients query if clinically supported.

Debridement

Definition:

- Excisional Debridement Definition: The surgical removal or cutting away of devitalized tissue, necrosis, and slough.
- Non-Excisional Debridement Definition: The nonoperative brushing, irrigating, scrubbing, or washing of devitalized tissue, necrosis, slough, or foreign material.

Diagnostic Criteria:

ICD-10 PCS Root Operations:

- Excision: cutting out/off without replacement, a portion of a body part
- Extraction: pulling or stripping out or off all or a portion of a body part
- Irrigation: putting in or on a cleansing substance
- Release: freeing a body part

CDI Practice Considerations:

- Review documentation closely, especially in patients with skin issues such as chronic wounds, cellulitis, or other skin infections. Both excisional and non-excisional debridement's can be performed in either a surgical suite or at the bedside and may be performed by a physician and/or another health care provider.
- Review for medical comorbidities, including, but not limited to sepsis, diabetes, circulatory disorders (e.g., PVD, chronic occlusions), plegia's (e.g., hemiplegia, quadriplegia, functional quadriplegia), and malnutrition
- Non-Excisional Debridement includes methods like Versajet and ultrasonic debridement.
    - Using a 'sharp instrument' does not always indicate an excisional debridement. When reviewing the intent of the procedure, look for terms such as 'excisional' or 'excision' to describe an excisional debridement, or ensure the procedure description aligns with the root operation of cutting out a portion of a body part without replacement (see Coding Third Quarter, 2015 reference for additional details).
- Debridement PCS codes are classified by depth.
    - Skin
    - Subcutaneous tissue/Fascia
    - Muscle
    - Bone
    - Joint
    - Tendon
    - Ligament/Bursa
- Excisional debridement PCS codes often impact MS-DRG. Depending on principal diagnosis, some Non-Excisional Debridement's, if performed beyond the subcutaneous layer, may also impact the MS-DRG.
- Educate providers with terms like 'down to and including' when describing the depth debridement as this provides clear guidance for assigning the appropriate depth to assign.
- When reviewing debridement documentation, necessary elements are as follows:
    - **D – depth** of the debridement (see list above)
    - **E-Excisional** or Non excisional
    - **T – tissue** removed (necrosis, slough etc.)
    - **A – appearance/size** of wound (size of the wound before vs. after debridement, was the debridement carried down to healthy bleeding tissue, etc.)
    - **I – instrument** used (scalpel, scissors, curette, pulse lavage)
    - **L-Location** (location and laterality)
    - **M – method** used by the provider (brushing, cutting, trimming, etc.)

Query Opportunity:

- Ensure documentation supports accurate code assignment, query the provider for missing, ambiguous, or conflicting documentation.
- Always review for accurate Principal Diagnosis. Query when missing, conflicting, and/or ambiguous documentation is present or clinical indicators support a more specific code, this can impact on the MS-DRG assignment, when paired with debridement PCS codes.

Electrolyte Disorders

Definition:

- Electrolyte imbalances are defined as electrolyte levels that fall outside the normal reference ranges established by institutional laboratories.
- Management of these imbalances typically includes correction of the abnormal values, daily monitoring of electrolyte levels, and, when indicated, electrocardiogram (EKG) and cardiac monitoring.
- Hypoelectrolytemia (low electrolyte levels) is commonly addressed through oral or intravenous replacement, identification and treatment of the underlying cause, and discontinuation of any contributing medications.
- Hypoelecrolytemia (high electrolyte levels) may require more complex management due to the risk of associated complications, necessitating close monitoring and supportive are.
- Syndrome of Inappropriate Antidiuretic Hormone Secretion (SIADH) involves excessive releasee of antidiuretic hormone (ADH) and is characterized by hyponatremia that is unresponsive to standard treatment protocols.

Diagnostic Criteria:

- Example of normal electrolyte reference ranges (varies by institution).

Sodium	134-146 meq/L
Potassium	3.5-5.1 meq/L
Total Calcium	8.6-10.4 mg/dl (4.3-5.3 meq/L)
Ionized Calcium	4.4-5.4 mg/dl (1.1-1.3 meq/L)
Magnesium	1.5-2.5 mg/dl (0.6-1.1 meq/L)
Phosphate	2.4-4.5 me/dl (1.0-1.5 meq/L)

CDI Practice Considerations:

- In patients admitted with elevated blood glucose levels and low sodium, the presentation may reflect pseudohyponatremia. In such cases, it is important to determine whether the sodium level is truly low by performing a corrected sodium calculation. This can be done using a sodium correction formula for hyperglycemia (e.g., Sodium Correction for Hyperglycemia).

Query Opportunity:

- Query opportunities to review for when patients have electrolyte abnormalities:
  - Acute Kidney Injury (AKI): May be associated with dehydration and electrolyte imbalance.
  - SIADH: Consider when sodium levels are unresponsive to standard treatment.
  - Congestive Heart Failure (CHF): Patients may present fluid overload, contributing to electrolyte disturbances.
  - Metabolic Encephalopathy: Significant deviations in sodium levels can lead to altered mental status. When sodium is corrected and the patient returns to baseline, review for the presence of metabolic encephalopathy and query, as necessary.
  - Symptom PDx: When the principal diagnosis is a symptom code (e.g., confusion, syncope, weakness), there may be an opportunity to query the provider to determine and document an underlying etiology – such as an electrolyte imbalance – to establish a more clinically specific and diagnostically meaningful principal diagnosis.

Encephalopathy

Definition:

- **"***Any diffuse disease of the brain that alters brain function or structure*" according to the National Institute of Neurological Disorders of Stroke.
- The term encephalopathy covers two broad groups of conditions:
  - Acute encephalopathy – is due to systemic factors that will resolve once the etiology is found and corrected.
  - Chronic encephalopathy – is generally a slow progression of altered mental status.
- Acute encephalopathy types include the following:
  - Metabolic Encephalopathy – caused by a metabolic derangement in conditions such as electrolyte imbalance, infection, hypoglycemia, organ dysfunction and failure, acute hypoxia
  - Toxic Encephalopathy – due to medicine, illicit drugs, toxic chemicals
  - Toxic-Metabolic-combo of toxic and metabolic factors with separate code of G92.8
  - Hepatic Encephalopathy – neurological impairment related to elevated ammonia levels in end stage liver disease
  - Wernicke-Korsakoff Syndrome – due lack of thiamin (Vitamin B1) often seen with alcohol use disorders & malnutrition
- Chronic encephalopathy types include the following:
  - Alcoholic Encephalopathy – chronic due to long term use of alcohol
  - Anoxic Encephalopathy – permanent brain damage due to prolonged hypoxia
  - Chronic Traumatic Encephalopathy – post-concussion syndrome
  - Hypertensive Encephalopathy – acute severe hypertensive episode causing headache and confusion, which can progress to stupor or a state of unresponsiveness. Convulsions can also be seen in

Diagnostic Criteria:

- Acute Encephalopathy Hallmark Signs:
  - Acute generalized alternation in brain function
  - Deviating from baseline
  - Described as altered mental status that resolves when the underlying etiology is treated
  - Not due to structural brain disease or changes
- Altered Mental Status can be seen or described as a combination of, but not limited to:
  - Confusion, disoriented
  - Lethargic, decreased alertness, not able to concentrate, obtunded
  - Loss of memory and cognitive ability
  - Change in behavior, speech, or personality

CDI Practice Considerations:

- Review the record closely to identify the TYPE or CAUSE of the encephalopathy.
- Metabolic encephalopathy and toxic encephalopathy can be coded together if encephalopathy is due to two separate causes. When caused by the same etiology, assign only code G92.8 (other toxic encephalopathy).
- Encephalopathy codes, recognized by type/etiology in ICD-10, have varying CC/MCC status when assigned as a secondary diagnosis
- If encephalopathy is the primary reason for admission:
  - Metabolic, Other, and Unspecified Encephalopathy: Maps to DRGs 070-072
  - Toxic: If due to poisoning, overdose, or toxic effect, the poisoning code would be sequenced first mapping to DRG 917, as G92-,
    - Toxic encephalopathy assigned as a Secondary Diagnosis (MCC). If due to an adverse effect, G92-,
    - Toxic encephalopathy would be assigned as the Principal Diagnosis, mapping to DRGs 089-091, with the Adverse Effect (T36-T50) code assigned as a Secondary Diagnosis.
- Educate providers to document not only the TYPE and CAUSE of encephalopathy as well as the patient's baseline and when they return to normal. This is especially important for dementia patients.
- For dementia patients, determine their baseline to assess acute encephalopathy and ensure clinical support for when they return to baseline after treatment.

  - Example: Metabolic encephalopathy secondary to UTI in dementia patient, who returns to baseline after treatment with IV antibiotics and IV fluids.
- Treatment is a key factor in support of encephalopathy and will help determine the type or etiology.
  - Since structural changes do not occur in acute encephalopathy, CT/MRIs are often unremarkable.
  - EEG may demonstrate slowing; however, it is unlikely to be ordered on every encephalopathic patient.
  - Review the diagnostic work up to identify any medication/toxic abnormalities, electrolyte irregularities, or infectious process.
- Wax and waning are not characteristic of acute encephalopathy; they are more typical of sundowning.
- Be aware of Glasgow Coma Scores in patients with confusion when applying Sepsis- 3 Sofa criteria.

Query Opportunity:

- Encephalopathy due to Sepsis represents organ failure. Based on clinical indicator support, query is necessary to clarify the type/etiology of Encephalopathy as Septic.
  - This allows code assignment of G93.41, Metabolic Encephalopathy, as well as R65.20, Severe sepsis without septic shock:
- Clinical Validation reviews are crucial. Reviewing the record closely ensuring clinical support is evident querying when necessary.
- When encephalopathy is documented and linked to a condition, review for clinical support and query as appropriate to further specify the type of encephalopathy:
  - Example: Encephalopathy secondary to UTI documented > G93.49, Other Encephalopathy (CC) Vs. Metabolic encephalopathy secondary to UTI > G93.41, Metabolic Encephalopathy (MCC)

Code	Diagnosis	CC/MCC
G31.2	Alcoholic Encephalopathy	N/A
G93.40	Encephalopathy, unspecified	CC
*K76.82	Hepatic Encephalopathy	MCC
I67.4	Hypertensive Encephalopathy	CC
*G93.1	Hypoxic/Anoxic Encephalopathy	CC
G93.41	Metabolic or Septic encephalopathy	MCC
G93.49	Other Encephalopathy	CC
G92-	Toxic or Toxic-Metabolic encephalopathy	MCC
E51.2	Wernicke's encephalopathy	CC

HIV Disease/AIDS

Definition:

- HIV Disease is caused by human immunodeficiency viruses, of all types, with destruction of CD4+ T-lymphocytes that help mediate the body's immune response to infection.
- The virus is bloodborne.
- It is most often transmitted through:
    - Sexual intercourse
    - Shared IV drug needles
    - Mother-to-child transmission during birth or breastfeeding

Diagnostic Criteria:

CDC is responsible for establishing the definitive case definitions of HIV infection and HIV disease (AIDS).

- HIV infection (HIV + without AIDS)- Identified through two different HIV antibody or antigen/antibody tests or by non-antibody virologic testing. This describes a person with a + HIV test but does meet the criteria for HIV disease (AIDS).
- HIV disease/AIDS- An HIV + patient with a past or present occurrence of one of the following:
    - Absolute CD4+ T-lymphocyte count< 200 or
    - CDC AIDS-defining conditions:
        - Pneumocystis pneumonia
        - Certain lymphomas
        - Systemic candidiasis
        - Kaposi's sarcoma
        - Other unusual bacterial, fungal, parasitic, viral infections
- The complete list of AIDS defining conditions can be found at *www.cdc.gov/mmwr/preview/mmwrhtml/rr5710a2.htm*.
- The stages of HIV are defined by the CD4 count (cells /uL):
    - Early (CD4 > 500)
    - Intermediate (CD4 200-500)
    - Advanced (CD4 100-200)
    - Late stage (CD4 < 100)

CDI Practice Considerations:

- The CDC recommends using the term "HIV disease" to describe AIDS.
- The term "HIV infection" refers to an HIV+ person who does not meet the criteria for HIV disease.
- B20 provides a CC as a secondary diagnosis, and both B20 and Z21 will influence risk adjustment.
- When HIV is assigned as either the PDx or SDx, along with a "major related" condition, an HIV DRG will be assigned.
- HIV "major related" conditions include the following: pneumonia, encephalopathy, sepsis, endocarditis, lymphoma, histoplasmosis, oral thrush, cryptococcus, cytomegalovirus, toxoplasmosis, myelitis, herpes viral infections, organic mental disorders, psychosis, salmonella infections, etc.
- If a patient is admitted and treated for a condition not listed as a "major related" condition, the PDx will be unrelated condition, and HIV will be secondary.
    - Example: A patient with HIV disease who falls and is admitted for a hip fracture and ORIF would have the PDx as the hip fracture, with B20 as a CC.
- CDI reviews should take the CD4 count into account when assessing the presence of possible infections or complications.

Query Opportunity:

- A provider must link or unlink HIV to the admission diagnosis. When documentation is unclear, a query should be placed.
- If the provider has documented HIV, HIV+, or HIV infection, but prior records show the code B20, a query may be necessary for clarification.

Hypertensive Crisis

Definition:

- HTN: Systolic blood pressure (SBP) of 130mm Hg or more and/or diastolic blook pressure (DBP) of more than 80mm Hg.
- HTN Crisis: Generic term to describe hypertensive urgency or hypertensive emergency, typically seen with elevated blood pressure readings of 180/120 or higher.
- HTN Urgency: Elevated blood pressure, > 180/120, without evidence of end organ damage.
- HTN Emergency: Elevated blood pressure, > 180/120, with evidence of end organ damage.
- Resistant HTN: High blood pressure that does not respond to antihypertensive drugs.

Diagnostic Criteria:

- Key defining characteristics between HTN Urgency and HTN Emergency is the presence of end organ damage.
- Examples of end-organ damage: CVA, MI, HTN Encephalopathy, AKI, Aortic Dissection, Pulmonary Edema.

CDI Practice Considerations:

- Hypertensive Crisis (I16.9) and Hypertensive Emergency (I16.1) are both classified are CC's, whereas Hypertensive Urgency (i16.0) is a non-CC.

Differentiating between HTN Urgency & Emergency can also be see in treatment regimen:

HTN Urgency

- Slower, controlled drop/reduction
  - Without signs of target organ damage, rapid lowering of BP carries risk of causing relative hypotension and end-organ hypoperfusion, especially in patient's who have longstanding severely elevated BP
- Typically do not require Inpatient Admission
- Treated with PO Meds
  - Examples: Catopril, Clonidine, Labetalol, Prazosin, Atenolol, Lopressore, Lininopril, and many others

HTN Emergency

- Rapid treatment
  - Typical goal is to lower MAP by 20%-25% within the first 1-2 hours.
- Typically require Inpatient Admission
- Treated with IV meds, while specific target organs affected may dictate some specifics
  - Examples: labetalol, esmolol, nicardipine, nitrolgycerin

Review the H&P closely for reported symptoms and physical exam findings. Note that physical exam findings will vary depending on target organ, but some common symptoms & findings to review for include:

Target organ	Symptoms	Physical Exam Findings
Cardiac	Chest pain, dyspnea, shortness of breath	Rales on lung auscultation, jugular venous distention, peripheral edema, extra heart sounds
Neurologic	Headache, dizziness, altered mental status, vision changes, vomiting	Ataxia, aphasia or slurred speech, unilateral numbness or weakness, papilledema. Review cranial nerve exam for strength and sensation testing.
Renal	Decreased urine output	Signs of pulmonary edema or peripheral edema

Query Opportunity:

- Providers often will document "malignant HTN" and "accelerated HTN," thinking they have included the required specificity. However, these are outdated terms and index to Essential (primary) HTN (i10), a non-CC. Query for further specificity when diagnostic criteria are met.
- In HTN Emergency patients, ensure the diagnosis of the end-organ damage is documented and supported by clinical indicators in the record. Query for specificity/clarification as needed.
- Review documentation HTN Urgency closely, querying when criteria are met to specify as HTN Emergency.
- Resistant HTN is not classified as a CC or MCC. Review the record thoroughly for clinical indicators and treatment to support querying for HTN Crisis/Urgency/Emergency when appropriate.

Immunodeficiency

Definition:

- Immunodeficiency or an immunocompromised state refers to a weakened immune system that results in more frequent infections that are more severe and last longer than usual.
- There are two types of immunodeficiency disorders:
    - Primary disorders are usually present at birth and are often hereditary. The International Union of Immunological Societies recognizes nine classes of primary immunodeficiencies, approximately 430 conditions.
    - Secondary disorders are acquired conditions related to chronic conditions, medical therapy, or other external factors.

Diagnostic Criteria:

- Review of past medical history of medical conditions and medicine therapy to evaluate if at risk.
- Complete blood count (CBC) - Cytopenia/Cell abnormalities.
- Immunoglobulin levels (IgG, IgM, IgA, and IgE).
- Bone marrow or lymph node biopsy to determine specific immunodeficiency disorder.

CDI Practice Considerations:

- Most Immunodeficiency codes provide a CC. With the new CMS V28 Risk Adjustment models, Immunodeficiency codes will no longer map to an HCC for Medicare Advantage patients. However, other Risk Adjustment models (Affordable Care Act and Medicaid) will continue to map to an HCC.
- Be aware of Secondary Disorders of Immunodeficiency that are treated with immunosuppressant drugs: Autoimmune Diseases, Lupus, Rheumatoid Arthritis, Crohn's disease, Multiple Sclerosis, Psoriasis, Other Immunocompromised Conditions, S/P Organ Transplant, Cancer patients receiving chemotherapy or radiation therapy, Common Immunosuppressants, Corticosteroids (Prednisone, Budesonide, prednisolone), Janus kinase inhibitors (Xeljanz), Calcineurin inhibitors (cyclosporine, tacrolimus), mTOR inhibitors (Rapamune, Afinitor, Zortress), IMDH inhibitors (Imuran, CellCept, Myfortic), Biologics (Orencia, Humira,, Embrel, Remicade, Rituxan, Cosentyx).
- Other Immunocompromised Conditions: S/P Organ Transplant, Cancer patients receiving chemotherapy or radiation therapy, Common Immunosuppressants, Corticosteroids (Prednisone, Budesonide, prednisolone), Janus kinase inhibitors (Xeljanz), Calcineurin inhibitors (Rapamune, Afinitor, Zortress), IMDH inhibitors (Imuran, CellCept, Myfortic), Biologics (Orencia, Humira, Embrel, Remicade, Rituxan, Cosentyx).
- Ensure that the documentation accurately reflects the underlying etiology of the immunodeficient state, enabling the assignment that truly represents the patient's clinical condition.

Query Opportunity:

- Clarify presence and type of immunodeficiency such as congenital, HIV related, secondary to chemotherapy, chronic steroid use or other immunosuppressants.
- If clinically supported, query for conditions like pancytopenia or neutropenia

Malnutrition

Definition:

Deficiencies, excesses, imbalances, in a person's intake of energy and/or nutrients.
The term malnutrition covers 2 broad groups of conditions:

- Undernutrition includes stunting (low height for age), wasting (low weight for height), underweight (low weight for age) and micronutrient deficiencies or insufficiencies (a lack of important vitamins and minerals).
- Overweight, obesity and diet-related noncommunicable diseases (such as heart disease, stroke, diabetes, and cancer).

Symptoms often involve weight loss, reduced appetite, tiredness, and irritability. Untreated malnutrition can cause physical or mental disability.

The 3 etiology-based nutrition diagnoses in adults in clinical practice settings are:

1. Starvation-related malnutrition: chronic starvation without inflammation (e.g., anorexia nervosa)
2. Chronic disease-related malnutrition: inflammation is chronic and of mild to moderate degree (e.g., malignancies, COPD, CKD, pancreatic insufficiency)
3. Acute disease or injury-related malnutrition: inflammation is acute and of severe degree (e.g., major infection, burns, trauma, or closed head injury)

Cachexia is a hypercatabolic state defined as accelerated loss of skeletal muscle in the context of a chronic inflammatory process. It can occur in the setting of advanced cancer as well as in chronic infection, AIDS, heart failure, rheumatoid arthritis, and COPD. The weight loss by patients with cachexia cannot be entirely attributed to poor caloric intake. Cachexia and Malnutrition are not synonymous terms. A patient may or may not have both conditions.

Diagnostic Criteria:

There are two different criteria sets available to use for malnutrition criteria that were developed by consensus statements: ASPEN criteria and GLIM criteria.

- ASPEN guidelines were developed by the Academy of Nutrition and Dietetics and the American Society for Parental and Enteral Nutrition for malnutrition in 2012. The criterion for malnutrition is dependent on two criteria related to energy intake, weight loss, fat wasting, muscle wasting, edema, and grip strength in the context of one of three scenarios: Acute illness or injury, Chronic illness or Social Circumstances as outlined in the following table with bolded criteria representing severe malnutrition and nonbolded representing non-severe (moderate) malnutrition.
- GLIM (Global Leadership Initiative on Malnutrition) was developed in 2016 to build a global consensus on the core diagnostic criteria for malnutrition in adults in clinical settings. It has two etiologic criteria elements (reduced nutritional intake and inflammation) and three phenotypic criteria (% of unintended weight loss, low BMI, and reduced muscle mass). Diagnosis is based on at least one etiologic and one phenotypic criterion. Severity grading is based on the phenotypic criteria.

CDI Practice Considerations:

- Malnutrition can impact DRG assignments, such as Mild, Moderate, or Unspecified malnutrition (E44 code group) provides a CC as a secondary diagnosis, while Severe Malnutrition (E43) provides a MCC as a secondary diagnosis.
- CDI programs should work with their organization to develop a standardized definition for malnutrition at their hospital- this may be ASPEN, GLIM, or a combination of both.
- Conditions that are commonly associated with malnutrition, which may include, but are not limited to: Dementia / Malignancies / Short Gut Syndrome / S/P Bariatric Surgery / Gastrointestinal symptoms (nausea, vomiting, diarrhea) / Prolonged NPO status
- Depending on the criteria utilized, BMI may not be one of the criteria to rely on for diagnosis of malnutrition. Be aware, a patient can be malnourished with a high or normal BMI.
- When educating providers on documentation, encourage the documentation treatment for malnutrition as well as supportive criteria from the nutrition consultation.
- Cachexia and Malnutrition can be reported together and often co-exist clinically. Although Cachexia is designated as a CC when assigned as a secondary diagnosis, adding both may further impact risk adjustment methodologies impacting reputational data. Likewise, underweight, R636 or abnormal weight loss, R634 do

not impact DRG assignment on their own, only if paired with the Z68.1, BMI 19.9, can provide a CC when assigned as a secondary diagnosis, however on their own R636 & R634, can impact risk adjustment methodologies and reputational data.

Query Opportunity:

- E40, E41 and E42 (kwashiorkor, nutritional marasmus and marasmic kwashiorkor) are rarely seen in the United States. Ensure documentation supports code assignment, querying when necessary.
- Develop a close relationship with nutrition therapy to identify patients with malnutrition so they are accurately diagnosed, treated and malnutrition diagnosis with severity is captured in documentation and code assignment. Refer to OCG Section 1.B.14, as a query may be needed to obtain diagnosis for code capture.
- Severe malnutrition is a highly targeted diagnosis for denials. A Clinical Validation Query of malnutrition, any severity level, may be needed if there is a discrepancy between the provider and nutrition therapy regarding the diagnoses or if clinical indicators do not support current documentation, query, as necessary.
- Follow documentation closely for lack of consistency noted in the severity of malnutrition throughout the record and seek clarification when needed.

ASPEN Criteria

ASPEN Malnutrition Clinical Criteria	Acute Illness or Injury	Chronic Illness	Social or Environmental Circumstances
Energy Intake	<75%of estimated energy requirement for >7 days **< 50% of estimated energy requirement for ≥ 5 days**	<75%of estimated energy requirement for ≥ 1 month **< 75% of estimated energy requirement for ≥ 1 month**	<75%of estimated energy requirement for ≥ 3 months **< 50% of estimated energy requirement for ≥ 1 month**
Weight Loss	1%-2% in a week 5% in a month 7.5% in 3 months **> 2% in a week** **>5% in a month** **>7.5% in 3 months**	5% in a month 7.5% in 3 months 10% in 6 months 20% in 1 year **>5% in a month** **>7.5% in 3 months** **>10% in 6 months** **>20% in a year**	5% in a month 7.5% in 3 months 10% in 6 months 20% in 1 year **>5% in a month** **>7.5% in 3 months** **>10% in 6 months** **>20% in a year**
Body Fat Wasting	Mild **Moderate**	Mild **Severe**	Mild **Severe**
Muscle Wasting	Mild Moderate	Mild **Severe**	Mild **Severe**
Presence of Edema	Mild **Moderate to Severe**	Mild **Severe**	Mild **Severe**
Grip Strength	N/A **Measurably reduced**	N/A **Measurably reduced**	N/A **Measurably reduced**

Source: ACDIS Pocket Guide

Myocardial Injury and Acute Myocardial Infarctions

Definition:

- Acute Myocardial Injury: Elevated cTN value above the 99th Percentile upper reference limit (URL). The injury is considered acute if there is a rise and /or fall of cTN values.
- Acute Non-Ischemic Myocardial Injury: Elevation of troponin due to non-ischemic cause, no evidence of ischemia (symptoms, ECG findings, imaging evidence).
- Non-Cardiac Cause examples:
    - CKD
    - Infections
    - Pulmonary Embolism
    - CVA
    - Pulmonary HTN
- Myocardial Infarction: Irreversible ischemic "injury" to the myocardium that occurs when acute myocardial ischemia causes acute myocardial injury.
    - Type 1 MI: Spontaneous MI related to ischemia due to a primary coronary event such as plaque erosion and /or rupture, fissuring or dissection.
    - Type 2 MI: Secondary to imbalance between myocardial oxygen supply and demand. Some example causes are: Severe anemia, Shock, Hypotension, Severe Bradycardia, and Atrial fibrillation.
    - Type 3 MI: Presents with MI symptoms but a troponin blood test was not performed. This type is often described as sudden cardiac death.
    - Type 4a MI: Associated with percutaneous coronary intervention.
    - Type 4b MI: Associated with stent thrombosis.
    - Type 4c MI: Associated with restenosis (>50%) after a successful PCI.
    - Type 5 MI: Associated with a CABG procedure.
    - MINOCA MI: With normal coronary arteries or <50% stenosis with no obvious noncoronary cause of MI. Common causes are coronary microvascular dysfunction, spontaneous coronary dissection, plaque disruption, coronary vasospasm.

Diagnostic Criteria:

Non- ischemic Acute Myocardial Injury: Rise and fall of troponin with one value of cTN above the 99% percentile.
Type 1 MI: Rise and fall of troponin with one value of cTN above the 99% percentile URL with one of following:

- Symptoms of acute myocardial ischemia: chest pain, shortness of breath, syncope, back/arm/jaw pain, diaphoresis, palpitations, profound weakness/fatigue.
- New ECG change: ST elevation, inverted T waves, etc.
- Development of pathological Q waves.
- Imaging evidence of loss of viable myocardium or new regional wall abnormalities, i.e., ECHO, MRI, CT coronary angiography, Cardiac Catheterization with angiography.

Type 2 MI: Rise and fall of troponin with one value of cTN above the 99% percentile URL and evidence of an imbalance between myocardial oxygen supply and demand unrelated to coronary thrombosis, requiring one of the following:

- Symptoms of acute myocardial ischemia: chest pain, shortness of breath, syncope, back/arm/jaw pain, diaphoresis, palpitations, profound weakness/fatigue.
- New ECG changes: ST elevation, inverted T waves, etc.
- Development of pathological Q waves.
- Imaging evidence of loss of viable myocardium or new regional wall abnormalities.

MINOCA: Rise and fall of troponin with one value of cTN above the 99% percentile URL.

- Symptoms of acute myocardial ischemia: chest pain, shortness of breath, syncope, back/arm/jaw pain, diaphoresis, palpitations, profound weakness/fatigue.
- New ECG changes: ST elevation, inverted T waves, etc.
- Development of pathological Q waves.
- Imaging evidence of loss of viable myocardium or new regional wall abnormalities.
- Non-obstructive coronary arteries (<50% stenosis).
- No overt specific cause for acute presentation.

CDI Practice Considerations:

- Whenever a Myocardial Injury diagnosis is documented, review clinical indicators closely, ensuring adequate support is present, and query, as necessary.
- Review for common comorbidities, which may include but are not limited to: Acute CHF (ensure type is specified), Cardiogenic Shock, Arrhythmias & Heart Block, Acute Respiratory Failure, and AKI.
- Acute MI (STEMI, NSTEMI, Type 2 MI, MINOCA) are MCC's when the PDX is not another circulatory condition: Non ischemic myocardial injury is a cc (comorbid condition).
- Providers should be educated to document the etiology of Type 2 MI and Non-Ischemic Myocardial Injury.
- Acute MIs typically are MCC's and can change the DRG: Exceptions to this rule are if it is a secondary diagnosis to a circulatory principal diagnosis.
- AMI is the driver of the MS-DRG in the circulatory system chapter: If a patient has a principal diagnosis found in the Circulatory Chapter (Heart Failure, Atrial fibrillation, DVT), the MS-DRG will be one of the MI DRGs (280-282 if discharged alive or DRG 283-285 if expired). The logic in the DRG expert book indicates DRG 280-286 is based on the principal or secondary diagnosis of I21*- Acute myocardial infarction or I22*–Subsequent STEMI & NSTEMI. For Example: If a patient is admitted with Atrial fibrillation as a principal diagnosis and had Acute MI for three days into admission, the Atrial fibrillation would remain the principal diagnosis. However, the secondary diagnosis of an Acute MI would drive it to MS-DRG 282 Acute MI discharged alive without cc. The Acute MI drives the DRG but does not count as a Major comorbid condition (MCC).
- AMI with cardiac catheterization without any intervention will remain in MS-DRG 280-286: Any other principal diagnosis in MDC 5 circulatory system with cardiac catheterization without intervention will map to MS DRG 286-287. For Example: Acute MI with a cardiac catheterization, discharged alive-> MS-DRG 280- 282 depending on secondary diagnoses; Atrial fibrillation with a cardiac catheterization, -> MS-DRG-> 286-287 depending on secondary diagnoses.
- Keep in mind that there are MCC exclusions for DRG 283-285, Acute MI expired. These include Cardiac Arrest due to Underlying condition, Cardiac Arrest due to other underlying condition, Cardiac Arrest, cause unspecified, Ventricular fibrillation, Respiratory arrest, Cardiogenic Shock, Hypovolemic Shock, Other Shock.
- MS-DRGs 280-282 are included in CMS quality measures related to the Hospital Readmission Reduction Program and the Hospital Value Based Purchasing Program with 30-day mortality measures.

Query Opportunity:

- If there is conflicting documentation between the providers, a query will need to be sent to the attending provider to clarify the diagnosis.
- If a patient has a history of recent MI, a query may be needed to clarify the date to code the Type 1 MI that happened within the last 4 weeks.
- If demand ischemia is documented and is associated with elevated troponins with a potential cause identified, a query may be needed.

Pancytopenia

Definition:

- Pancytopenia is a hematologic condition where there is a lower-than-normal number of red and white blood cells and platelets in the blood. Common etiologies include, but are not limited to:
    - Autoimmune disorders, Bone marrow disorders, Genetic disorders, Infection (e.g., COVID-19, Sepsis, HIV infections), Poor nutrition, Pregnancy, Chemotherapy, Radiation therapy, Exposure to certain toxins, chemicals or medicines, Myeloid neoplasms, Aplastic anemia, Megaloblastic anemia.

Diagnostic Criteria:

- Thresholds depend on age, sex, race and varying clinical scenarios, however generally recognized criteria is:
    - Hemoglobin: < 12 g/dL in women; < 13 g/dL men, Platelets: < 150,000, WBC: < 4,000 per ml; OR an absolute neutrophil count < 1800 per ml.
    - Signs and symptoms may include abnormal bleeding, fatigue, dizziness, weakness, difficulty breathing, chest pain, tachycardia, fever, pale skin, rash, ulcers, easy bruising, or petechiae.

CDI Practice Considerations:

- When pancytopenia is drug induced, ICD-10-CM distinguishes whether it is due to antineoplastic chemotherapy (D61.810) or other drug (D6.811), both of which are designated as MCC, potentially impacting MS-DRG assignment.
- When pancytopenia is NOT drug induced, ICD-10-CM distinguishes it as other pancytopenia (D61.818), designated as a CC, potentially impacting MS-DRG assignment. Be aware of the Coding Clinic, this includes cases when pancytopenia is due to Acute Myeloid Lukemia (AML).
    - Sequencing of principal diagnosis:
        - The Official Guidelines for Coding and Reporting for anemia associated in malignancy (I.C.2.c.1) does not apply to pancytopenia, as pancytopenia encompasses more than anemia. Therefore, when patients are admitted with pancytopenia due to malignancy, AND the pancytopenia is the focus of the admission/care/treatment, the pancytopenia would be assigned as principal diagnosis.
        - When the admission/encounter is for management of anemia documented as "pancytopenia due to chemotherapy," D61.810 is assigned for pancytopenia caused by cancer-fighting drugs. In cancer patients, pancytopenia usually occurs due to bone marrow suppression from chemotherapy.

Query Opportunity:

- Pancytopenia is a manifestation of another underlying condition. When reviewing etiology it can be grouped into three categories: decreased production (central type), bone marrow infiltration/replacement, or increased destruction (peripheral type). Review the record closely and query when necessary.

Pathological Fractures

Definition:

- A pathological fracture is a bone fracture that occurs without adequate trauma, caused by an underlying disease.

Diagnostic Criteria:

- Identified in Radiology/Diagnostic Imaging such as X-Ray, CT, MRI, or bone scans. There are various underlying causes for pathological fractures which can include, however not limited to: Osteoporosis, Metastatic tumors of the bone, Osteomyelitis, Paget's disease, Disuse atrophy, Hyperparathyroidism, Nutritional disorders, Congenital disorders.

CDI Practice Considerations:

- Pathological fractures may occur with minor trauma:
    - If the Fracture is described as 'spontaneous' these are always pathological fractures.
    - Providers often related the term 'pathological' as correlating to malignancy, unaware the term also encompasses other common etiologies.
    - One way to differentiate a potential pathological fracture from a traumatic fracture is to ask yourself if the trauma sustained would normally cause a fracture.
- Be aware, only severe osteoporosis can be seen on x-rays, hence why DEXA scanning is used for diagnosis.
- Review medication administration reports (MAR) and home med lists closely for treatment.
    - Bisphosphonates are typically the first choice of treatment for osteoporosis, and some may be given in quarterly or annual IV infusion vs. Weekly or monthly pills. I/P MARS may not list them as activated medications, making home medication list necessary for review.
    - Common medications to treat osteoporosis include Fosamax/Fosamax Plus D, Actonel/Actonel with Calcium/Atelvia, Boniva, Reclast, Prolia (typically given to those who cannot tolerate bisphosphonates related to reduced kidney function), Vitamin D.
- Stress fractures are different from pathological fractures in that stress fractures are due to repetitive force applied before the bone and its supporting tissues have had enough time to absorb such forces.

Query Opportunity:

- Review for underlying etiology of Fracture and query when necessary:
    - When sequenced as the PDx, pathological and traumatic fractures can map to different DRG's, depending on location.
    - Pathological fractures that occur during an encounter, i.e., with a POA status of N, are excluded as Hospital Acquired Conditions (HAC).
- Review the record closely for any significant trauma when the fracture is described as 'compression.'
    - Compression fractures can be pathological fractures or due to trauma. Query the provider if documentation is unclear.

Pneumonia

Definition:

An inflammation of the air sacs in one or both lungs caused by infection due to several organisms including bacteria, viruses, and fungi. It can also be caused by inhaling gases, toxic fumes, and pollutants or by aspiration. Obstructions of the bronchial tubes can cause pneumonia (tumors, small objects, food).

- In the inpatient setting, the most common types of Pneumonia include:
  - Community-Acquired Pneumonia (CAP): Acquired outside of healthcare setting, can be grouped into three categories:
    - Typical bacteria: Streptococcus Pneumoniae, Haemophilus influenzae, Staphylococcus Aures, Group A streptococci, etc.
    - Atypical bacteria: Legionela, mycoplasmapneumoniae, chlamydia pneumoniae, etc.
    - Respiratory viruses: Influenza A and B viruses, coronavirus, etc.
  - Nosocomial Pneumonia: Acquired in a hospital setting, includes Hospital-Acquired Pneumonia (HAP) & Ventilator-Associated pneumonia (VAP):
    - HAP: Pneumonia that occurs > 48 hours after hospital admission; common causative organisms include MRSA, Pseudomonas along with other similar drug-resistant gram-negative bacteria.
    - VAP: Pneumonia that occurs > 48 hours after endotracheal intubation; common causative organisms include MRSA, Pseudomonas along with other gram-negative organisms.
  - Healthcare-Associated Pneumonia (HCAP):
    - Pneumonia that was acquired in health care facilities or after recent hospitalization.
    - Often documented but is no longer a recognized definition to identify treatment guidelines.
  - Aspiration Pneumonia: An infection of the lungs caused by the inhalation of non-air substances (food, liquid, saliva, stomach contents, etc.) into your respiratory tract.

Diagnostic Criteria:

- Pneumonia is recognized as a clinical diagnosis, based on physical exam findings and symptoms.
- Imaging– CXR/CT scan typically demonstrates an infiltrate, consolidation, or interstitial changes.
- Sputum and Blood Cultures are often drawn but a conclusive organism is not typically identified from these cultures.
- Severe cases may utilize bronchoscopy and /or lung biopsy to determine cause and extent of disease.
- Pulmonary Signs and Symptoms:
  - Cough
  - Dyspnea
  - Increased Work of Breathing
  - Hypoxemia
  - Breath sounds (may include rales, crackles, rales)
- Other Symptoms:
  - Fever
  - Elevated WBC
  - Pleuritic chest pain
  - Organ failure (in severe cases)

CDI Practice Considerations:

- When assigned as the PDx, Pneumonia is recognized in MS-DRGs as either Simple (DRG 193-195) or Complex (177-179) which is a higher weighted DRG.
- When assigned as an SDx, Pneumonia is recognized as a MCC, except for VAP, which is recognized as a CC.
- All 'unspecified' pneumonias are classified as Simple Pneumonia (MS-DRG 193-195)
- Documentation of HCAP, HAP or CAP does not impact ICD-10-CM code assignment. Educate providers to document the causative organism, known or suspected.
- Certain bacterial pneumonias will map to an HCC in Risk Adjustment
- Given pneumonia is recognized as a clinical diagnosis, imaging may be negative, however the provider will diagnose pneumonia based on other diagnostics. Ensure the documentation supports the providers' reasoning when clinical grounds alone are used to diagnosis pneumonia, querying, as necessary. If a patient is dehydrated, an infiltrate and/or consolidation may not show up on imaging until the patient is adequately hydrated.

- Providers can document a cause-and-effect relationship between an organism identified in a sputum culture to pneumonia to support code assignment. However, sputum cultures can be inconclusive and are not necessary to support code assignment. The type of pneumonia can be diagnosed empirically by a provider based on patient assessment, risk factors, clinical criteria, and treatment. Also, bacterial pneumonia cannot be coded simply based on a sputum culture or gram stain result alone.
- Review the patient's history, clinical presentation, type of antibiotics, and response to treatment to help differentiate between a Simple or Complex pneumonia.

Aspiration pneumonia indicators include, but are not limited to:

- Risk factors-CVA history, swallowing difficulties, coughing/vomiting, AMS
- Aspiration precautions
- Failed Speech/Swallowing Study
- Right middle and lower lung infiltrate
  - "Aspiration" documented alone is a symptom, not a diagnosis. Query as necessary to establish a cause-and-effect relationship to link aspiration and pneumonia.
  - Per CDC definition, Ventilator Associated Pneumonia cannot develop before 4 days of mechanical ventilation. There is not an assumed relationship between a ventilator and pneumonia. The physician must specifically document a cause-and-effect relationship, or a query will be needed.
  - Both the Hospital Readmissions Reduction Program and Hospital Value -Based Purchasing 30-day mortality measures apply for a principal diagnosis of Pneumonia and Aspiration Pneumonia or a principal diagnosis of sepsis with a secondary diagnosis of pneumonia. For this Medicare population, it is important to capture secondary diagnoses for risk adjustment measures.
  - Review for antibiotic resistance, querying, as necessary. The following ICD-10-CM codes identify resistant bacteria that are also classified as CCs. It is typical in these circumstances that more resources are used to treat the patients and the patient's antibiotics are likely to change during the stay.

Query Opportunity:

- Review the record closely to identify the type or causative organism, querying as necessary, as this determines code and MS-DRG assignment as well as SOI/ROM and HCC score.
- Often, providers will document HCAP or HAP thinking they are 'saying' the pneumonia is a gram-negative or complex pneumonia. Query as necessary when clinical indicators support a more specific pneumonia code assignment.

Respiratory Infections and Inflammations (Complex Pneumonia) -DRG 177-179	Simple Pneumonia and Pleurisy MS-DRG – 193-195
Gram-negative Pneumonia	Influenza d/t flu virus with pneumonia
Pneumonia due to Pseudomonas	Viral pneumonia, NOS
Pneumonia due to staphylococcus	Streptococcus pneumoniae Pneumonia
Pneumonia due to Klebsiella	Pneumonia due to Hemophilus influenza
Pneumonia due to COVID	Unspecified bacterial pneumonia
Aspiration Pneumonia	Lobar pneumonia, unspecified organism
Pneumonia due to MRSA	Pneumonia due to mycoplasma pneumoniae
Pneumonia due to E. coli	Legionaries

ICD-10-CM Code	Description
Z16.11	Resistance to Penicillin, amoxicillin, or ampicillin
Z16.22	Resistance to vancomycin related antibiotics
Z16.23	Resistance to quinolones and fluoroquinolones
Z16.24	Resistance to multiple antibiotics
Z16.32	Resistance to antifungal drugs
Z16.33	Resistance to antiviral drugs

Respiratory Failure

Definition:

Syndrome where the respiratory systems fail in either or both the gas exchange function or oxygenation and carbon dioxide elimination. Recognized as either hypoxemic or hypercapnic.

Diagnostic Criteria:

Acute Hypoxic Respiratory Failure:

- $p0_2$ < 60mmHg on room air measured by ABG, or
- $Sp0_2$ <91% on room air measured by pulse oximetry, c
- P/F ratio <300 on oxygen

Acute Hypercapnic Respiratory Failure:

- pCO_2 > 50mmHg with pH < 7.35

Chronic Hypercapnic Respiratory Failure

- pCO_2> 50 with normal pH

Acute on Chronic Respiratory Failure:

- Increase in chronic supplemental oxygen, or
- $p0_2$ < 60 or $Sp0_2$ <91% on usual home O_2 (instead of room air), or
- Decrease in baseline pO_2 by >10mmhg on ABG

Chronic Hypoxic Respiratory Failure:

- SpO2 < 91% on room air or pO2 < 60 on room air often seen with compensatory metabolic acidosis

CDI Practice Considerations:

- Acute Respiratory Failure is a highly targeted diagnosis in denials. In addition to blood gas impairments, patients with acute respiratory failure should display some signs/symptoms of difficulty breathing such as: inability to speak in complete sentences, accessory muscle usage, presence of retractions, tachypnea or slowed breathing rates, breath sounds described as grunting or wheezing, or the presence of cyanosis. If unresponsive to or delayed treatment patients may also develop neurologic indications such as anxiety, confusion, restlessness, seizures, somnolence, or coma.
- Mechanical Ventilation is not a requirement to diagnosis Acute Respiratory Failure, however, is a strong indicator to consider when querying along with initiation of BiPAP therapy (i.e., not used at night for routine OSA). If the patient is intubated and placed on mechanical ventilation, track the time closely ensuring documentation supports precise intubation and extubating times for accurate PCS code and MS-DRG assignment.
- P/F ratios are extremely helpful for CDS's to determine if the patient meets criteria for Acute Respiratory Failure while receiving oxygen supplementation. Further it can be a powerful tool when providing education to providers when SpO_2 levels may be 'normal' with supplemental oxygen. It is a simple calculation:
    - Divide the PaO_2 by the FiO_2, represented by a decimal i.e., 35% oxygen = FiO_2 0.35

    Example:

    - Pt. has a PaO_2 65 while on 5L (FiO_2 40%)
    - P/F ratio calculation: 65 / 0.35 = 185.71, meeting criteria for Acute Hypoxic Respiratory Failure
- *It is inappropriate to calculate P/F ratios if the patient is on home oxygen therapy.
- Generally accepted prediction models indicate that for every liter of oxygen supplied, the FiO_2 increases by 4%.
    - **1L =** 24%, 2**L =** 28%, 3**L =** 32%, 4**L =** 36%, 5**L =** 40%, 6**L =** 44%
- Review the oxygen delivery type (NC, NRB, HFNC etc.) with flow rates closely to determine FiO_2. Generally, a FiO_2 of 36% or higher could be a clinical indicator for acute respiratory failure.
- Acute respiratory insufficiency, acute pulmonary insufficiency, acute respiratory distress, and hypoxia do not code to acute respiratory failure. Review the record for clinical indicator support and query, as necessary.
- Review clinical indicators for diagnostic criteria for Acute Respiratory Failure or Chronic Respiratory Failure when "respiratory acidosis" is documented, querying, as necessary.
- $SpO_2 \leq 88\%$ is a generally accepted criteria to qualify for home oxygen use, therefore when a patient requires continuous oxygen support, it is a reliable clinical indicator for chronic hypoxemic respiratory failure.

Query Opportunity:

- Not every patient who has COPD has chronic respiratory failure. Therefore, it is still appropriate to apply diagnostic criteria for Acute hypoxic and/or hypercapnic respiratory failure when reviewing for potential query opportunities.
- Each respiratory failure case should be reviewed for validity based on circumstances of admission. If respiratory failure is not valid, a query should be sent.

Sepsis

Definition

A clinical systemic, dysregulated host response to infection. It causes extensive inflammation throughout your body that can lead to organ failure and shock if not treated with early intervention.

- The term sepsis covers a broad group of conditions:
  - Severe Sepsis – is recognized in ICD-10 CM as Sepsis with an associated acute organ dysfunction.
  - Septic Shock – is recognized in ICD-10 CM as Severe Sepsis with circulatory failure associated with hypotension.
  - Please refer to diagnostic criteria outlined below for specific qualifying parameters for Sepsis conditions.
  - SIRS – refers to the systemic response to infection, trauma/burns, or other non-infectious conditions.
  - Bacteremia – is the presence of bacteria in the blood.

Diagnostic Criteria:

The two most recognized criteria set for Sepsis: Sepsis-2 and Sepsis-3

Sepsis-2 Criteria:

- This criterion is followed by CMS and is based on the presence of infection and SIRS criteria with lab markers and findings added after the Surviving Sepsis Campaign.
- Sepsis-2 criteria are when two or more of the following criteria are related to an infectious cause and cannot be explained by another co-existing condition:
  - Temperature > 38 degrees C or below 36 degrees C. (SIRS criteria)
  - Heart rate >90 beats/min (SIRS criteria)
  - Respiratory rate >20 breaths /min or PaCO2 < 32 mm HG (SIRS criteria)
  - WBC >12,000/ul or <4000/ul or with 10% immature band forms (SIRS criteria)
  - Change in mental status
  - Significant edema or positive fluid balance (>20ml/kg over 24 hours)
  - Hyperglycemia (>120 mg/dl) in someone without diabetes
  - Elevated C-reactive protein in serum > 2 standard deviations
  - Elevated procalcitonin >2 standard deviations
  - Arterial hypotension (SBP <90 mmHG, MAP <70mmHg, or SBP decrease > 40mmHg in adults
- Severe Sepsis markers for organ dysfunction and hypoperfusion:
  - Arterial hypoxemia/PaO2/FIO2 <300
  - Acute oliguria
  - Creatinine Increase $\geq$ 0.5 mg/dl
  - Coagulation Abnormalities (INR >1.5 or PTT >60 seconds)
  - Ileus
  - Thrombocytopenia (Platelet count <100,000 ul)
  - Lactic acid >3mmmol/L
  - Hyperbilirubinemia >4
  - Decreased capillary refill or mottling
- Severe Sepsis with Septic Shock is recognized as hypotension, SBP <90, or MAP <70, or reduction in SBP of >40, not responsive to a fluid challenge frequently requiring vasopressor therapy. Or a lactate of >4.0.

Sepsis-3 Criteria:

  - The Third International Consensus Definition for Sepsis and Septic shock was released in 2016.
  - Per this consensus:
    - Organ Dysfunction is graded on a scaling system. The Sequential Organ Failure Score (SOFA) has a scoring system from 0-4 with 0 being no organ dysfunction beyond baseline measurement. The organ function requires a total SOFA score of 2 points or more.
    - Septic Shock per Sepsis 3 criteria is defined as sepsis induced hypotension despite adequate fluid resuscitation.

SOFA Criteria				
Points	1	2	3	4
Respiration PaO2/FiO2	<400	<300	<200 with respiratory support	<100 with respiratory support
Coagulation Platelet Count	<150K	<100K	<50K	<25K
Liver Function Bilirubin (mg/dL)	1.2-1.9	2.0-5.9	6.0-11.9	>12.0
Cardiovascular Hypotension	MAP<70	Dopamine ≤ 5 or dobutamine (any dose)	Dopamine > 5 or epinephrine ≤ 0.1 or norepinephrine ≤ 0.1	Dopamine >15 or epinephrine >0.1 or norepinephrine >0.1
Neurological Glasgow Coma Scale	13-14	10-12	6-9	<6
Renal Creatinine or urine output	1.2-1.9	2.0-3.4	3.5-4.9 or UOP<500ml/day	>5.0 or UOP<200ml/day

Septic shock requirements:

- Vasopressor support is needed to maintain mean arterial pressure (MAP) > 65 mmHg
- Serum lactate level >2 mmol/L

CDI Practice Considerations:

- Follow guidance from your organization on which diagnostic criteria to use for *Sepsis* i.e., *Sepsis 2*, *Sepsis 3,* or a combination of *both*. However, be aware of *both* sets of criteria.
- In using the *SOFA scoring table*, remember that 0 is based on no organ dysfunction. A patient's baseline must be confirmed for appropriate application. *For example*, if a patient's baseline creatine is 1.6 and current creatinine is 1.8, the score would be 0. If the same patient with a baseline creatinine of 1.6 has a current level of 2.5, the patient would have 1 point. The scale must be adjusted based on starting point values.
- Sepsis is a target for denials. It should always be reviewed for clinical validation. If sepsis is documented and it does not meet clinical criteria, query, as necessary.
- Negative blood cultures do not preclude a diagnosis of sepsis for patients with clinical symptoms. Refer to *OCG Section 1.C.1.d.1.a.(i.)*
- Organ Failure with Sepsis should be linked in documentation, query, as necessary.
- Common organ failures seen in Sepsis included, but are not limited to: *Acute Renal Failure, Septic/Metabolic Encephalopathy, Acute Respiratory Failure, and Septic Shock*
- If present on admission, Sepsis will most likely be the principal diagnosis. The exceptions would be if it is secondary to a complication from a device/medical care, HIV disease, newborn, or pregnant patient.
    - Common scenarios include when patients are admitted with CAUTI's or CLABSI, query as necessary if sepsis criteria present. In these cases, the complication code is sequenced first, with the Sepsis assigned as a Secondary diagnosis with MCC status.
- If sepsis is documented early in the record and then falls off the record, a query may be needed for consistent documentation or to indicate if sepsis has been ruled out or resolved.
- Bacteremia does not code with sepsis. Review the record closely, query, as necessary when sepsis diagnostic criteria are met.

Query Opportunity:

- SIRS do not equate to Sepsis as there are Non-Infectious sources of SIRS. Review the record closely, if SIRS criteria are present due to an infection, either suspected or confirm, query as necessary for Sepsis (if applying Sepsis-2 criteria).
- There is no specific code for "urosepsis" in ICD-10-CM. A query would be needed to clarify the provider's intended diagnosis i.e., Sepsis due to UTI.

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