Nephrology

1. MCG Criteria Used

Clinical Criteria: MCG Care Guidelines, 30th Edition

- Renal Failure, Acute: Inpatient Admission (MCG ORG: M-326 ISC, 30th Edition)
- Chronic Kidney Disease, Referral Management (MCG ORG: R-0192 AC, 30th Edition)

Applicable CPT / HCPCS Codes:

CPT / HCPCS Code	Description
90935, 90937	Hemodialysis procedure with single or repeated physician evaluation(s), for management of acute renal failure
90945, 90947	Dialysis procedures other than hemodialysis (e.g., peritoneal dialysis, hemofiltration, continuous renal replacement therapy) with physician evaluation
90999	Unlisted dialysis procedure, inpatient or outpatient
3E1M39Z	Introduction of dialysate into peritoneal cavity, percutaneous approach (ICD-10-PCS procedure for peritoneal dialysis)
Evaluation and management codes	Inpatient hospital evaluation and management associated with acute renal failure admission, observation, and continued stay determinations
Referral and consultation services	Ambulatory nephrology, vascular surgery, urology, endocrinology, and related specialty referral and consultation services for chronic kidney disease management

2. Statement of Rationale

Akido Labs uses the criteria in MCG Care Guidelines (30th Edition) to supplement the general Medicare criteria regarding nephrology services, including inpatient admission for acute renal failure (stage 3 acute kidney injury) and the appropriate timing and routing of specialty referral for chronic kidney disease, where Medicare coverage criteria are not fully established or require additional clinical specificity. MCG criteria are used to ensure consistency in reviewing the conditions to be met for coverage of nephrology services and to determine when such services are medically necessary.

Renal disease constitutes a substantial source of acute inpatient utilization, dialysis dependence, and avoidable progression among Medicare enrollees. Analysis of national hospital discharge data shows that 80.4% of Medicare-insured patients presenting to the emergency department with a principal diagnosis of acute renal failure are admitted to inpatient care, compared with 55.4% of a commercially insured population, with a mean inpatient length of stay of 5.1 days. These rates reflect the high clinical acuity, complex comorbidity burden, and elevated mortality risk of renal disease in the Medicare Advantage population. Absent consistent, evidence-based criteria, there is material risk of both inappropriate denial of medically necessary renal inpatient services and inappropriate delay of specialty referral that allows preventable progression to end-stage renal disease.

Potential Clinical Harms:

Acute Renal Failure: Inappropriate denial of inpatient admission for acute renal failure (stage 3 acute kidney injury) could result in premature discharge of a patient with severe metabolic or electrolyte abnormalities, refractory volume overload, uremic complications, or a new need for renal replacement therapy. Patients with life-threatening acidosis, hyperkalemia with electrocardiographic changes, pulmonary edema, hypertensive emergency, hypotension, or an underlying critical illness driving the renal failure require inpatient-level monitoring and, in many cases, intensive care. Denial of inpatient status increases the risk of fatal arrhythmia from hyperkalemia, progressive uremia, and preventable death in a population with limited physiologic reserve.

Chronic Kidney Disease referral: Inappropriate denial or delay of specialty referral for chronic kidney disease could result in unrecognized disease progression, missed opportunity for blood pressure and glycemic optimization, untreated anemia or mineral-bone disorder, and absent or late vascular access planning. Late nephrology referral is associated with emergent rather than planned dialysis initiation, catheter-related bloodstream infection from temporary access, and increased early mortality after dialysis start. Delay of vascular surgery referral for arteriovenous fistula creation in particular exposes patients to the harms of central venous catheter dependence.

Clinical Benefits:

Acute Renal Failure: MCG criteria provide specific, validated thresholds for inpatient admission drawn directly from the Kidney Disease: Improving Global Outcomes (KDIGO) acute kidney injury clinical practice guideline and consensus statements, including the KDIGO staging framework, criteria for urgent renal replacement therapy, and the metabolic and hemodynamic parameters that warrant intensive care. Evidence supports that use of these criteria prevents the specific harms identified above: a multinational randomized controlled trial of 1,360 patients found that appropriate dialytic management strategy materially reduced all-cause mortality (hazard ratio 0.77, 95% confidence interval 0.65 to 0.93), and a retrospective review of 1,754 patients started on dialysis for acute kidney injury found that 41% recovered kidney function and discontinued dialysis with appropriate inpatient management. By ensuring appropriate inpatient admission using MCG criteria, the risk of premature discharge leading to fatal arrhythmia, progressive uremia, or preventable death is materially reduced.

Chronic Kidney Disease referral: MCG criteria apply the KDIGO 2024 chronic kidney disease guideline and specialty society recommendations to identify the specific clinical triggers (e.g., declining estimated glomerular filtration rate, refractory hypertension, resistant anemia, need for vascular access) that warrant timely referral to nephrology, vascular surgery, and related specialties. A Cochrane systematic review on early referral to specialist nephrology services found that early referral was associated with reduced mortality and shorter initial hospitalization compared with late referral, directly countering the harms of unplanned dialysis initiation and catheter dependence identified above. Appropriate referral using MCG criteria ensures planned, lower-risk transitions to renal replacement therapy.

Reduction of unwarranted variation and overutilization: MCG criteria also identify lower-acuity presentations that can be safely managed in observation care or the outpatient setting (e.g., acute kidney injury responsive to volume resuscitation without metabolic derangement, stable chronic kidney disease not yet meeting referral thresholds), reducing unnecessary inpatient exposure to falls, delirium, and nosocomial infection in this elderly population. The clinical benefits of using MCG Care Guidelines are highly likely to outweigh any clinical harms, including delayed or decreased access to services. The criteria are unlikely to lead to inappropriate denials because they incorporate validated staging tools and admission and referral thresholds drawn directly from current national specialty society guidelines (KDIGO, NICE). Use of these criteria ensures patients receive the most clinically appropriate level of care, and decreases inappropriate denials by applying a consistent, objective, evidence-based set of review criteria across the Medicare Advantage population.

3. Explanation of Supplementation

Basis for Use:

Original Medicare clinical criteria are not fully established and require supplementation to ensure consistent medical necessity determinations for specific nephrology services, including inpatient admission for acute renal failure and the timing and routing of chronic kidney disease specialty referral. While Medicare statutes establish the general 'reasonable and necessary' standard, they do not specify the clinical thresholds (e.g., acute kidney injury staging, serum creatinine and urine output parameters, electrolyte and acid-base cutoffs, indications for urgent renal replacement therapy, estimated glomerular filtration rate referral triggers) required to distinguish inpatient-appropriate from observation-appropriate or outpatient-appropriate renal presentations.

Applicable Medicare References:

- Social Security Act Section 1862(a)(1): 'Reasonable and necessary' standard
- Medicare Benefit Policy Manual, Chapter 1: Inpatient Hospital Services Covered Under Part A (CMS IOM Publication 100-02)
- Medicare Benefit Policy Manual, Chapter 6: Hospital Services Covered Under Part B (CMS IOM Publication 100-02)
- Medicare Benefit Policy Manual, Chapter 15: Covered Medical and Other Health Services (CMS IOM Publication 100-02)
- Medicare Program Integrity Manual, Chapter 6, Section 6.5: Medical Review of Inpatient Hospital Claims for Part A Payment (CMS IOM Publication 100-08)
- Code of Federal Regulations: 42 CFR 412.3; 42 CFR 419.22; 42 CFR 422.101
- Conditions of Participation: Discharge Planning (42 CFR 482.43)
- National Coverage Determinations: For acute renal failure inpatient admission and chronic kidney disease referral, no specific NCD or LCD fully establishes clinical admission or referral thresholds; Original Medicare criteria are not fully established for these conditions, requiring supplementation.
- Medicare Coverage Database: https://www.cms.gov/medicare-coverage-database/search.aspx

Within the above statutes and regulations, coverage criteria for specific renal inpatient and referral services are not fully established, and the use of MCG Care Guidelines is necessary to provide additional clinical specificity. Specifically, MCG criteria assist in determining:

- Patient stability for inpatient admission versus alternatives (e.g., observation care, emergency department treatment, outpatient or dialysis-center management) for acute renal failure;
- Appropriateness of inpatient level of care based on evidence-based clinical thresholds, including acute kidney injury staging, electrolyte and acid-base status, volume status, and indications for urgent renal replacement therapy;
- Expected clinical course and medical necessity of continued inpatient stay, including identification of complications (e.g., refractory hyperkalemia, uremic complications, new dialysis requirement) that require stay extensions;
- Appropriateness and timing of specialty referral for chronic kidney disease, including nephrology, vascular surgery for access planning, urology, endocrinology, and related consultations.

The use of MCG Care Guidelines ensures consistency in reviewing the conditions to be met for coverage of nephrology services. Use of these criteria to supplement the coverage criteria noted

above provides clinical benefits by helping ensure renal inpatient care and specialty referral are not incorrectly denied when medically appropriate for a particular patient, nor incorrectly approved when not reasonable and necessary. The clinical benefits of using these criteria are highly likely to outweigh any clinical harms, including from inappropriate denials, because the criteria are unlikely to lead to inappropriate denials. The added criteria will provide numerous clinical benefits in helping ensure patients receive the appropriate level of care. In addition, use of the criteria may decrease inappropriate denials by creating a consistent set of evidence-based review criteria.

4. Summary of Clinical Evidence

Background

Renal Failure, Acute (MCG ORG: M-326 ISC)

Acute renal failure, viewed for the purposes of these criteria as stage 3 acute kidney injury in the KDIGO classification system, is characterized by an abrupt decline in renal function known or presumed to have occurred over the previous 7 days. Analysis of national hospital discharge data shows 80.4% of Medicare-insured patients presenting to the emergency department with a principal diagnosis of acute renal failure are admitted to inpatient care, compared with 55.4% in a commercially insured population, reflecting the substantially higher disease burden and reduced functional reserve of older adults. Analysis of an all-payer database shows a mean length of stay of 5.1 days. The KDIGO acute kidney injury clinical practice guideline provides the primary evidence-based framework incorporated into the MCG M-326 guideline.

Chronic Kidney Disease, Referral Management (MCG ORG: R-0192 AC)

Chronic kidney disease referral management addresses the clinical circumstances under which a patient with chronic kidney disease should be referred for specialty evaluation, including nephrology, cardiology, endocrinology, vascular surgery for dialysis access, urology, transplant surgery, and palliative care. Timely referral supports blood pressure and glycemic optimization, management of anemia and mineral-bone disorder, planned vascular access creation, and preparation for renal replacement therapy or conservative management. The KDIGO 2024 chronic kidney disease guideline and related specialty society guidance provide the primary evidence-based frameworks incorporated into the MCG R-0192 guideline.

Evidence Summary

Renal Failure, Acute (MCG ORG: M-326 ISC)

The evidence for the clinical indications in this guideline includes 8 published peer-reviewed articles, 2 specialty society or other evidence-based guidelines, and 7 book sections. Key evidence includes:

- A consensus guideline states that patients with acute renal failure, defined as stage 3 acute kidney injury, are appropriate for admission to inpatient care or the ICU to facilitate diagnostic workup, nephrology evaluation, and management of volume overload or severe metabolic or electrolyte abnormalities. Consensus guidelines further state that patients with acute kidney failure who require urgent renal replacement therapy should be admitted to inpatient care, often the ICU.
- A multinational, pragmatic, randomized controlled trial of 1,360 patients with kidney failure receiving maintenance dialysis compared high-dose hemodiafiltration with high-flux hemodialysis and found that high-dose hemodiafiltration was associated with a decreased risk of death from any cause (hazard ratio 0.77, 95% confidence interval 0.65 to 0.93).
- A retrospective review of 1,754 adult patients started on outpatient hemodialysis for acute kidney injury (70 dialysis centers) found that 41% (725 patients) recovered kidney function

and discontinued hemodialysis, supporting the reversibility of appropriately managed acute kidney injury.

- Analysis of national hospital discharge data shows 30% of hospitalized adult patients with a primary diagnosis of acute renal failure were discharged in 2 days or less, supporting the MCG goal length of stay of 2 days.

Chronic Kidney Disease, Referral Management (MCG ORG: R-0192 AC)

The evidence for the clinical indications in this guideline includes 55 published peer-reviewed articles, 14 specialty society or other evidence-based guidelines, 2 Cochrane systematic reviews, and 2 book sections. Key evidence includes:

- A Cochrane systematic review on early referral to specialist nephrology services for preventing progression to end-stage kidney disease supports timely referral to reduce mortality and shorten initial hospitalization compared with late referral.
- The KDIGO 2024 clinical practice guideline for the evaluation and management of chronic kidney disease and NICE guidance NG203 establish the estimated glomerular filtration rate, albuminuria, and comorbidity thresholds that trigger nephrology and related specialty referral.
- KDOQI and specialty society vascular access guidelines support referral to vascular surgery for arteriovenous fistula or graft creation in patients approaching the need for hemodialysis, reducing reliance on central venous catheters and their associated infectious and thrombotic complications.
- Specialty society guidance supports referral for management of chronic kidney disease comorbidities, including diabetes mellitus, cardiovascular-kidney-metabolic syndrome, resistant hypertension, anemia unresponsive to therapy, and underlying genetic disorders such as autosomal dominant polycystic kidney disease.

Rationale (from MCG)

Use of these MCG care guidelines helps the clinician identify patient-specific complex clinical factors that make it reasonable to expect a necessity for hospital care across 2 or more midnights for acute renal failure, and to identify the specific complex factors of a patient's chronic kidney disease that may warrant specialist consultation. The evidence-based clinical criteria assist the clinician in the decision to appropriately admit a patient to inpatient care and to refer for timely specialty care. For Medicare enrollees, MCG care guidelines also support the clinician in the decision to appropriately admit a patient to inpatient care when there is not an expectation of 2 or more midnights of hospital care (e.g., CMS Two-Midnight Rule exceptions). Use of these evidence-based clinical criteria ensures patients receive the most appropriate care for their specific condition, reduces unnecessary risks, promotes recovery, and provides a standard that can reduce disparities in care. Appropriate use of the evidence-based clinical criteria ensures Medicare patients receive full access to Medicare benefits without risk of delay or decreased access. These guidelines supplement but do not replace, modify, or supersede existing Medicare regulations or applicable National Coverage Determinations (NCDs) or Local Coverage Determinations (LCDs).

Related CMS Coverage Guidance (as cited in MCG 30th Edition):

- Code of Federal Regulations (CFR): 42 CFR 412.3; 42 CFR 419.22; 42 CFR 422.101
- CMS IOM Publication 100-02, Medicare Benefit Policy Manual: Chapter 1 (Inpatient Hospital Services); Chapter 6 (Hospital Services Under Part B); Chapter 15 (Covered Medical and Other Health Services)
- CMS IOM Publication 100-08, Medicare Program Integrity Manual, Chapter 6, Section 6.5
- For Chronic Kidney Disease, Referral Management (R-0192 AC), the MCG guideline indicates no specific CMS coverage guidance is applicable to the referral determination itself.

- Medicare Coverage Determinations: Medicare Coverage Database: https://www.cms.gov/medicare-coverage-database/search.aspx

References with Citation Summary -- Renal Failure, Acute (MCG ORG: M-326 ISC, 30th Edition)

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