Cardiovascular Disease

Akido Labs | MCG Care Guidelines, 30th Edition

1. MCG Criteria Used

Clinical Criteria: MCG Care Guidelines, 30th Edition

- Myocardial Infarction: Inpatient Admission (MCG ORG: M-230 ISC, 30th Edition)
- Heart Failure: Inpatient Admission (MCG ORG: M-190 ISC, 30th Edition)
- Chest Pain: Inpatient Admission (MCG ORG: M-89 ISC, 30th Edition)
- Holter Monitor (MCG ORG: A-0120 AC, 30th Edition)

Applicable CPT / HCPCS Codes:

CPT / HCPCS Code	Description
93303-93355	Echocardiography (transthoracic, transesophageal, stress, congenital, fetal, and Doppler)
93015-93018	Cardiovascular stress test (exercise or pharmacological), with or without physician supervision, interpretation, and report
93224-93227	External electrocardiographic recording (Holter monitoring), up to 48 hours; recording, scanning, and analysis with physician review and interpretation
93015-93018, J0153, J2785, A9500	Cardiovascular stress test with pharmacological stress agents: adenosine (J0153), regadenoson (J2785), and myocardial perfusion imaging agent (A9500 - sestamibi); includes physician supervision and interpretation
F93985	Coronary computed tomographic angiography (CCTA) with contrast, including 3D rendering and interpretation, cardiac advanced imaging
33010-39599, 92960-92979, 93451-93662	Cardiovascular surgical procedures (pericardiocentesis through other thoracic procedures); cardioversion and electrophysiology services; cardiac catheterization, hemodynamic monitoring, and intracardiac procedures

2. Statement of Rationale

Akido Labs uses the criteria in MCG Care Guidelines (30th Edition) to supplement the general Medicare criteria regarding cardiovascular services, including inpatient admissions for acute cardiac conditions such as myocardial infarction, decompensated heart failure, and undifferentiated chest pain, 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 cardiovascular services and to determine when such services are medically necessary.

Cardiovascular disease is the leading cause of morbidity and mortality among Medicare Advantage enrollees. Medicare beneficiaries hospitalized for myocardial infarction have a mean inpatient length of stay of 3.5 days, and 3.9% of Medicare beneficiaries who present to the emergency department with chest pain require inpatient admission. For heart failure, 81.5% of Medicare-insured patients presenting to the emergency department are admitted to inpatient care, with a mean length of stay of 5.4 days. These rates reflect the clinical complexity and high-acuity nature of cardiovascular conditions in this population. Absent consistent, evidence-based criteria, there is substantial risk of both inappropriate denial and inappropriate approval of inpatient services, resulting in harm to patients.

Potential Clinical Harms:

- The potential clinical harms of using MCG Care Guidelines may include inappropriately denying medically necessary cardiovascular inpatient services, which could result in delayed diagnosis or treatment of acute cardiac events (e.g., unmanaged myocardial infarction, refractory cardiogenic shock, persistent hemodynamic instability), resulting in increased morbidity, acute decompensation, or preventable mortality.
- Inappropriate denial of inpatient care for decompensated heart failure could result in premature discharge to an outpatient or post-acute setting that cannot adequately manage the patient's fluid overload, electrolyte abnormalities, or hemodynamic instability, increasing the risk of acute deterioration and unplanned readmission.
- For chest pain evaluations, inappropriate denial of inpatient admission could result in premature discharge of a patient with unrecognized acute coronary syndrome, dangerous arrhythmia, or hemodynamic instability, placing the patient at immediate risk for adverse cardiac events outside of a monitored setting.
- Inappropriate denial of advanced cardiac diagnostic services (e.g., echocardiography, stress testing, Holter monitoring, cardiac catheterization) could delay identification of structural or ischemic cardiac disease, leading to missed or late treatment of conditions with high mortality potential in the Medicare Advantage population.

Clinical Benefits:

- The clinical benefits of using MCG Care Guidelines are highly likely to outweigh any clinical harms, including from delayed or decreased access to services, as MCG criteria promote consistent, objective, evidence-based decision-making tailored to the Medicare Advantage population with disproportionately high baseline cardiovascular risk.
- MCG criteria provide specific, evidence-based thresholds for inpatient admission (e.g., hemodynamic instability, persistent symptoms despite observation care, cardiac troponin elevation patterns consistent with acute MI, severe pulmonary edema requiring invasive ventilatory support) that reduce unwarranted variation and ensure clinically appropriate determinations.
- Standardized application of MCG criteria limits circumstances where cardiovascular inpatient services are inappropriately approved, reducing exposure of elderly patients to unnecessary inpatient procedural risks, nosocomial infection, and complications associated with acute care settings when outpatient or observation care is adequate.
- MCG criteria support the CMS Two-Midnight Rule framework by helping clinicians document the specific clinical factors that justify inpatient status for Medicare beneficiaries who may not clearly meet the two-midnight benchmark through conventional analysis but whose clinical complexity warrants inpatient-level care.
- Evidence-based decision support reduces disparities in care by applying standardized criteria consistently across diverse patient populations, regions, and facilities, and supports high-quality, clinically aligned coverage determinations for cardiovascular services.

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 cardiovascular services, including inpatient admissions for myocardial infarction, heart failure, and undifferentiated chest pain, as well as outpatient cardiovascular diagnostic services. While Medicare statutes establish the general "reasonable and necessary" standard, they do not specify the clinical thresholds (e.g., troponin rise-and-fall patterns, oxygen saturation cutoffs, hemodynamic parameters) required to distinguish inpatient-appropriate from observation-appropriate or outpatient-appropriate cardiovascular presentations.

Applicable Medicare References:

- Social Security Act Section 1862(a)(1): "Reasonable and necessary" standard for coverage of items and services
- 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 (Admissions); 42 CFR 419.22 (Hospital services excluded from outpatient PPS); 42 CFR 422.101 (Requirements relating to basic benefits)
- Conditions of Participation: Discharge Planning (42 CFR 482.43
- National Coverage Determinations (NCDs): NCD 20.7 (Cardiac Pacemakers); NCD 20.15 (Implantable Automatic Defibrillators); NCD 20.11 (Percutaneous Transluminal Angioplasty); NCD 220.6 (Echocardiography). For services not covered by an applicable NCD or LCD, Original Medicare clinical criteria are absent or not fully established for the specific condition.
- Medicare Coverage Database: https://www.cms.gov/medicare-coverage-database/search.aspx

Within the above statutes and regulations, coverage criteria for specific cardiovascular inpatient and diagnostic services are not fully established, and the use of MCG Care Guidelines, as indicated above, is necessary to provide additional clinical specificity to evaluate the member's circumstances as outlined in the medical history, physician recommendations, and clinical notes. Specifically, MCG criteria assist in determining:

- Patient stability for inpatient admission versus alternatives (e.g., observation care, emergency department treatment, outpatient evaluation) for chest pain, myocardial infarction, and decompensated heart failure;
- Appropriateness of inpatient level of care based on evidence-based clinical thresholds, including hemodynamic parameters, troponin kinetics, oxygen requirements, arrhythmia burden, and renal function;
- Expected clinical course and medical necessity of continued inpatient stay, including identification of complications (e.g., cardiogenic shock, dangerous arrhythmia, mechanical complications of MI, acute kidney injury) that require stay extensions;
- Appropriateness of guideline-directed medical therapy (GDMT) initiation and optimization during hospitalization for heart failure with reduced or preserved ejection fraction;

- Medical necessity of advanced cardiovascular diagnostic services, including echocardiography, stress testing, Holter monitoring, coronary CT angiography, and cardiac catheterization, for evaluation of acute and chronic cardiovascular conditions in the Medicare Advantage population.

The use of MCG Care Guidelines ensures consistency in reviewing the conditions to be met for coverage of cardiovascular services. Use of these criteria to supplement the coverage criteria noted above provides clinical benefits by helping ensure cardiovascular inpatient care and diagnostic services are not incorrectly denied when medically appropriate for a particular patient, nor incorrectly approved when not reasonable and necessary. Limiting inappropriate approvals reduces risks associated with unnecessary inpatient admission (e.g., nosocomial infection, procedural complications, delirium) in a population with high baseline cardiac risk and complex comorbidities.

4. Summary of Clinical Evidence

Note: The following evidence summary is derived directly from MCG Care Guidelines, 30th Edition (ISC guidelines M-230, M-190, and M-89; and AC guideline A-0120). Full numbered reference lists for each guideline, extracted directly from the MCG source guidelines, are provided below.

Background

Myocardial Infarction (MCG ORG: M-230 ISC)

Acute coronary syndrome (ACS) describes the clinical spectrum from unstable angina to non-ST-elevation myocardial infarction (NSTEMI) to ST-elevation myocardial infarction (STEMI). STEMI is characterized by symptoms of myocardial ischemia (e.g., chest pain, dyspnea), ST-segment elevation on ECG, and elevated cardiac troponin from baseline. NSTEMI similarly presents with myocardial ischemia symptoms and troponin elevation, but without ST-segment elevation. The term non-ST-elevation acute coronary syndrome (NSTE-ACS) encompasses both NSTEMI and unstable angina. Myocardial infarction is classified by etiology: Type 1 MI arises from atherosclerotic plaque rupture or erosion with thrombosis; Type 2 MI results from mismatch between myocardial oxygen supply and demand; Types 4 and 5 MI occur in the setting of PCI or cardiac surgery, respectively. Analysis of national hospital discharge data shows 49% of NSTEMI patients and 58% of STEMI patients are discharged within 2 days, with a mean inpatient length of stay of 3.5 days for all MI admissions.

Heart Failure (MCG ORG: M-190 ISC)

Heart failure (HF) represents a clinical syndrome in which the heart cannot pump sufficient blood to meet the body's metabolic demands, or can do so only at elevated filling pressures. It is categorized by ejection fraction: heart failure with reduced ejection fraction (HFrEF) and heart failure with preserved ejection fraction (HFpEF). Decompensated heart failure, characterized by worsening pulmonary edema, dyspnea, tachypnea, hypoxemia, and peripheral edema, accounts for approximately 1 million hospitalizations annually in the United States. Among Medicare-insured patients presenting to the emergency department with heart failure, 81.5% are admitted to inpatient care. The mean inpatient length of stay is 5.4 days, with 24% of patients discharged in 2 days or less. Advanced therapy center admissions report a median age of 70 years. Guideline-directed medical therapy (GDMT), including beta-blockers, renin-angiotensin inhibitors (angiotensin receptor-neprilysin inhibitors preferred), aldosterone antagonists, and sodium-glucose cotransporter-2 (SGLT2) inhibitors, is the cornerstone of inpatient and outpatient management for HFrEF. Initiation and optimization of GDMT during hospitalization is recommended when clinical stability is achieved.

Chest Pain (MCG ORG: M-89 ISC)

Chest pain is one of the most common presenting complaints in emergency departments and represents a diagnostically challenging and clinically high-stakes evaluation. The differential diagnosis includes acute coronary syndrome (unstable angina, NSTEMI, STEMI), aortic dissection, pulmonary embolism, pericarditis, myocarditis, esophageal conditions, musculoskeletal causes, and pulmonary etiologies. Among Medicare-insured patients presenting with a principal diagnosis of chest pain, 3.9% are admitted to inpatient care (versus 0.7% of commercially insured patients), reflecting the higher cardiovascular risk profile of the Medicare Advantage population. The mean inpatient length of stay is 2.2 days, with 73% discharged within 2 days. Evidence-based specialty society guidelines (ACC/AHA 2021; ACC 2022) provide risk stratification frameworks (e.g., HEART score, high-sensitivity troponin protocols) to distinguish low-risk patients who can be safely discharged from the emergency department from intermediate- and high-risk patients requiring further evaluation in observation or inpatient settings. Low-risk patients (e.g., HEART score 0 to 3, two negative serial troponins, nonischemic ECG) can be discharged without further inpatient testing; intermediate-risk patients require coronary CT angiography or stress testing (performable in observation care); high-risk patients (e.g., HEART score 7 to 10, elevated troponins, persistent symptoms) require inpatient admission and are often reclassified under the Myocardial Infarction or Angina guideline.

Holter Monitor (MCG ORG: A-0120 AC)

Holter monitoring is a noninvasive ambulatory diagnostic study that continuously records the cardiac rhythm, typically for 24 to 48 hours and in some cases up to 7 days, and is most appropriate for capturing arrhythmic events that occur frequently. Within cardiovascular evaluation it is indicated for known or suspected bradycardia or conduction disorder, chest pain suggestive of ischemia, assessment after initiation of antiarrhythmic medication, structural or infiltrative heart disease, recurrent palpitations or atrial fibrillation, post-ablation rhythm surveillance, suspected supraventricular tachycardia, syncope of suspected arrhythmic etiology, transient ischemic attack or ischemic stroke, and known or suspected ventricular arrhythmia. Because the short recording window limits diagnostic yield, MCG criteria match the monitoring modality to event frequency, reserving longer-duration or implantable monitors for infrequent events. This MCG care guideline may overlap CMS guidance located in statutes and regulations; for Medicare Advantage beneficiaries, applicable NCDs, LCDs, and other regulations are followed first, and MCG criteria supplement but do not replace them.

Evidence Summary

Myocardial Infarction (MCG ORG: M-230 ISC)

The MCG Myocardial Infarction guideline (30th Edition) is supported by 7 published peer-reviewed articles, 5 specialty society or other evidence-based guidelines, and 3 book sections. Key evidence includes:

- The 2025 ACC/AHA/ACEP/NAEMSP/SCAI Guideline for the Management of Patients with Acute Coronary Syndromes (Rao SV, et al., Circulation 2025) and the 2023 ESC Guidelines for the Management of Acute Coronary Syndromes (Byrne RA, et al., European Heart Journal 2023) confirm that inpatient admission is appropriate for patients with acute MI, with ICU or intermediate care level warranted for patients with hemodynamic instability, dangerous arrhythmia, or refractory ischemia.
- The Fourth Universal Definition of Myocardial Infarction (Thygesen K, et al., Circulation 2018) establishes the diagnostic criteria for all MI subtypes, including troponin kinetics (rise-and-fall patterns) and the clinical and ECG findings that define ischemic myocardial injury; these criteria are directly incorporated into the MCG clinical indications for inpatient admission.
- The 2021 ACC/AHA/SCAI Guideline for Coronary Artery Revascularization (Lawton JS, et al., Circulation 2022) concludes that radial artery access is preferred for PCI due to reduced major bleeding, vascular complications, and mortality in ACS patients.

- Analysis of the National Inpatient Sample database of 4945 patients undergoing primary PCI for STEMI found 25% were discharged within 2 days; national discharge data shows 49% of NSTEMI and 58% of STEMI patients were discharged within 2 days, supporting the MCG goal length of stay of 2 days.
- The 2025 ACC expert consensus on cardiogenic shock management (Sinha SS, et al., JACC 2025) and 2021 AHA scientific statement on invasive management of MI complicated by cardiogenic shock (Henry TD, et al., Circulation 2021) support escalated ICU-level care and mechanical circulatory support for high-risk MI presentations.

Heart Failure (MCG ORG: M-190 ISC)

The MCG Heart Failure guideline (30th Edition) is supported by 6 published peer-reviewed articles, 5 specialty society or other evidence-based guidelines, and 2 book sections. Key evidence includes:

- The 2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure (Heidenreich PA, et al., Circulation 2022) recommends inpatient admission for patients with decompensated HF presenting with severe pulmonary edema requiring invasive or noninvasive assisted ventilation, cardiogenic shock, dangerous arrhythmia, myocardial ischemia, or severe electrolyte abnormalities. It recommends initiation and optimization of all four pillars of GDMT during hospitalization.
- The 2024 ACC Expert Consensus Decision Pathway on Clinical Assessment, Management, and Trajectory of Patients Hospitalized with Heart Failure (Writing Committee, et al., JACC 2024) provides updated guidance on inpatient management, including escalation of GDMT, and supports the MCG optimal recovery course of 2 days when clinical milestones (hemodynamic stability, resolution of pulmonary edema, volume status acceptable on oral medications) are achieved.
- A narrative review (Kittleson MM, Annals of Internal Medicine 2023) recommends inpatient care for patients with cardiogenic shock, severe hypoxia, hypotension, myocardial ischemia, uncontrolled arrhythmia, severe electrolyte abnormalities, acute kidney injury, or severe congestion unresponsive to initial therapy, consistent with MCG clinical indications.
- Analysis of 525,037 patients admitted with decompensated HF to advanced therapy centers (Lu DY, et al., Circulation: Heart Failure 2024) showed 25% were discharged in 2.2 days or less (median age 70 years). Analysis of 2,331,690 patients at non-advanced therapy centers found 25% discharged in 1.9 days or less, supporting the 2-day goal length of stay.
- The 2025 ACC expert consensus on evaluation and management of cardiogenic shock (Sinha SS, et al., JACC 2025), the 2024 AHA scientific statement on cardiogenic shock in older adults (Blumer V, et al., Circulation 2024), and the ISHLT/HFSA guideline on acute mechanical circulatory support (Bernhardt AM, et al., Journal of Heart and Lung Transplantation 2023) support escalated ICU-level care, pulmonary artery catheter monitoring, inotropic and vasopressor agents, and mechanical circulatory support for high-risk HF presentations.

Chest Pain (MCG ORG: M-89 ISC)

The MCG Chest Pain guideline (30th Edition) is supported by 1 published peer-reviewed article, 4 specialty society or other evidence-based guidelines, and 1 book section. Key evidence includes:

- The 2021 AHA/ACC/ASE/CHEST/SAEM/SCCT/SCMR Guideline for the Evaluation and Diagnosis of Chest Pain (Gulati M, et al., Circulation 2021) and the 2022 ACC Expert Consensus Decision Pathway on the Evaluation and Disposition of Acute Chest Pain in the Emergency Department (Kontos MC, et al., JACC 2022) provide the foundational risk stratification framework (HEART score, troponin protocols) adopted in MCG clinical indications for inpatient admission.

- Low-risk patients (HEART score 0 to 3, two negative serial troponins, nonischemic ECG) can be discharged from the emergency department without further evaluation; intermediate-risk patients require coronary CT angiography or stress testing (feasible in observation care); high-risk patients (HEART score 7 to 10, elevated troponins, persistent symptoms, hemodynamic instability) require inpatient admission.
- The 2025 ACC/AHA Guideline for the Management of Patients with Acute Coronary Syndromes (Rao SV, et al., Circulation 2025) and the 2023 ESC Guidelines for ACS (Byrne RA, et al., European Heart Journal 2023) support high-sensitivity troponin measurement as the preferred approach, enabling more rapid risk stratification (1 to 2 hours versus 3 to 6 hours for conventional troponin assays).
- A multicenter study of 9,690 emergency department patients evaluated for possible ACS (Miller J, et al., JAMA Network Open 2025) found 75.9% were discharged from the emergency department without observation or inpatient admission; 7.2% underwent stress testing before discharge, and only 0.8% underwent revascularization within 30 days, consistent with MCG risk-stratified approach to appropriate admission.
- National discharge data shows 73% of chest pain inpatients were discharged within 2 days, supporting the MCG goal length of stay of 2 days; the 3.9% inpatient admission rate for Medicare beneficiaries (versus 0.7% commercially insured) underscores the higher-acuity cardiovascular profile of the Medicare Advantage population.

Holter Monitor (MCG ORG: A-0120 AC)

The MCG Holter Monitor guideline (30th Edition) is supported by 50 published peer-reviewed articles, 19 specialty society or other evidence-based guidelines, and 2 book sections. Key evidence includes:

- For ventricular arrhythmia, evidence demonstrates at least moderate certainty of at least moderate net benefit. Specialty society guidance (AHA/ACC/HRS 2017 ventricular arrhythmia guideline) states that ambulatory electrocardiographic monitoring with a Holter monitor is useful to evaluate whether symptoms such as palpitations, presyncope, or syncope are caused by a ventricular arrhythmia and to guide management.
- For transient ischemic attack or ischemic stroke, a systematic review and meta-analysis of 50 studies (11,658 patients; Sposato LA, et al., Lancet Neurology 2015) found ambulatory Holter monitoring detected poststroke atrial fibrillation in 10.7% of patients, and the EMBRACE randomized trial (Gladstone DJ, et al., New England Journal of Medicine 2014) showed extending monitoring to 30 days increased atrial fibrillation detection more than fivefold and nearly doubled anticoagulant initiation, supporting Holter monitoring to prevent recurrent stroke from undetected atrial fibrillation.
- For bradycardia and conduction disorders, chest pain, antiarrhythmic medication assessment, structural and infiltrative heart disease, palpitations and atrial fibrillation, post-ablation surveillance, supraventricular tachycardia, and syncope, specialty society guidance (ISHNE-HRS 2017 consensus on ambulatory ECG; ACC/AHA/HRS syncope, bradycardia, supraventricular tachycardia, and atrial fibrillation guidelines) supports Holter monitoring for these specific clinical presentations, with diagnostic yield dependent on the likelihood of a recurrent event during the recording window.

Rationale (from MCG)

The following rationale statements are drawn directly from the applicable MCG Care Guidelines, 30th Edition (ISC guidelines M-230, M-190, and M-89; and AC guideline A-0120), and apply to the cardiovascular guidelines covered in this section:

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. The evidence-based clinical criteria assist the clinician in the decision to appropriately admit a patient to inpatient 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 to support decision-making around the need for inpatient cardiovascular treatment is of clinical benefit to the patient and is crucial for quality patient care. Use of 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. Evidence-based clinical criteria not only help align treatment decisions with best practice, but they can also help reduce unwarranted variation in care by fostering consistency and equality in healthcare provision across regions and facilities.

Appropriate use of the evidence-based clinical criteria in conjunction with the Supplemental Medicare Criteria ensures Medicare patients receive full access to Medicare benefits (e.g., inpatient cardiovascular care), without risk of delay or decreased access, based on variables such as clinical severity of illness, length of provision of medically necessary hospital-level care, or satisfaction of specified Medicare criteria as directed by CMS. Use of these criteria will help ensure that the patient receives necessary care in the appropriate setting.

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
- Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 1: Inpatient Hospital Services Covered Under Part A; Chapter 6: Hospital Services Covered 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: Medical Review of Inpatient Hospital Claims for Part A Payment
- Medicare Coverage Determinations: Medicare Coverage Database

Reference Lists

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5. Public Accessibility

Transparency Tool URL:

https://akido.access.mcg.com/index

Coverage Summaries URL:

https://www.myfamilymg.com/medical-necessity-supplementation-criteria/documents

Navigation Instructions:

To access these coverage summaries, navigate to the UM Criteria page, scroll to the bottom of the page, and click the Medical Necessity Supplementation Criteria link. All summaries are organized alphabetically by category.

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