

# THE LIVANTA CLAIMS REVIEW ADVISOR



*A monthly publication to raise awareness, share findings, and provide guidance about Livanta's Claim Review Services*

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## Higher-Weighted Diagnosis Related Groups (HWDRG) Validation: Type 2 Myocardial Infarction

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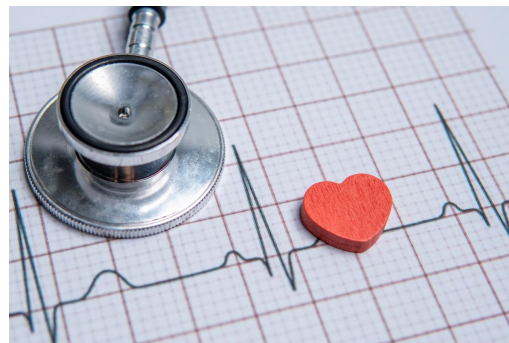
This month's issue of *The Livanta Claims Review Advisor* addresses the correct reporting of type 2 myocardial infarction (MI) on Medicare Part A claims. As always, coders must follow proper reporting and sequencing guidelines. The following guidelines governing the coding of MI are reviewed based on coding errors Livanta has encountered while performing HWDRG reviews.

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### Definition of Myocardial Infarction

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According to the World Health Organization (WHO), a myocardial infarction (MI) is defined by the demonstration of myocardial cell necrosis due to significant and sustained ischemia. Ischemia is usually due to atherosclerosis of a coronary artery, but it can also be due to a spasm of an artery, as well as thrombosis of the artery. Clinical signs and symptoms include an elevated troponin level, chest pain or pressure, electrocardiogram (ECG) changes, development of cardiac wall motion immobility, and sudden unexpected cardiac death.



## Four Severity Levels of a Cardiac Event

1. ST-segment elevation myocardial infarction (STEMI): The infarction is causing certain ECG changes, specifically ST-wave changes. This is also known as a transmural myocardial infarction. A STEMI is the most severe type of acute myocardial infarction.
2. Non-ST-segment elevation myocardial infarction (NSTEMI): This is a less severe type of myocardial infarction, where there are no ST-wave changes on the ECG. This is also known as a non-Q-wave, subendocardial, or non-transmural myocardial infarction.
3. Type 2 myocardial infarction: This is caused by a supply/demand mismatch in the heart (rather than a blockage) that results in tissue death/infarction.
4. Demand Ischemia: This diagnosis indicates a supply/demand mismatch in the heart that does not result in tissue death/infarction.

### References

Sweis, Ranya N. and Jivan, Arif MD, PhD, (2024). Acute Myocardial Infarction (MI). *Merck Manual*. Available at [Acute Myocardial Infarction \(MI\) - Cardiovascular Disorders - Merck Manual Professional Edition](#).

Siddiqui, MU, Ahmed, A, Siddiqui, MD, & Pasha, AK (2020). Myocardial Infarction Type 2: Avoiding Pitfalls and Preventing Adverse Outcomes. *Clinical medicine & research*, 18(4), 117–119. Available at [Myocardial Infarction Type 2: Avoiding Pitfalls and Preventing Adverse Outcomes - PMC](#).

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## Five Types of Acute Myocardial Infarction

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The Merck Manual has identified five types of acute myocardial infarction. These types are described below.

- Type 1: A spontaneous MI due to a primary coronary event like plaque rupture
- Type 2: An MI due to demand ischemia such as vasospasm, anemia, or hypotension
- Type 3: An MI resulting in death when biomarker values are unavailable
- Type 4: An MI related to percutaneous transluminal coronary angioplasty (PTCA) or thrombosis/restenosis of a stent
- Type 5: An MI related to coronary artery bypass grafting (CABG)



### Reference:

[Sweis, Ranya N. and Jivan, Arif MD, PhD, \*ibid.\*](#)

# Documentation Requirements

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In ICD-10-CM there is no way to assign the code for a type 2 myocardial infarction from the coding index and tabular if myocardial infarction is not documented. There is no index entry for type 2 alone, and there is no entry pointing to a myocardial infarction for documentation of “type 2 demand ischemia.” There is only an entry for type 2 myocardial infarction. Therefore, it is important to query the physician whenever “type 2” is documented but myocardial infarction is not.

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## Clinical Indicators of a Type 2 Myocardial Infarction

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According to the National Institutes of Health (NIH), type 2 myocardial infarction is defined as the detection of a rise, fall, or both a rise and a fall of cardiac troponin values with at least one value above the 99th percentile of the upper reference limit, as well as evidence of an imbalance between myocardial oxygen supply and demand. This imbalance is not caused by coronary thrombosis and requires at least one of the following features: (1) symptoms of acute myocardial ischemia; (2) new ischemic ECG changes; (3) development of pathological Q waves; or (4) imaging evidence of new loss of viable myocardium or new regional wall motion abnormality in a pattern consistent with ischemia.



The clinical indicators supporting demand ischemia without myocardial infarction are the same, except the troponin level is below the 99th percentile. In essence, both conditions refer to a supply and demand mismatch, but with a type 2 myocardial infarction, there is death of cardiac tissue (infarction). Ischemia is a temporary reduction in blood flow, whereas infarction is cellular death.

### Reference:

Collinson, Paul, MD and Lindahl, Bertil, MD, PhD (2016). Diagnosing Type 2 Myocardial Infarction. American College of Cardiology. Available at [ACC.org/latest-in-cardiology/articles/2016/05/18/13/58/diagnosing-type-2-myocardial-infarction](https://www.acc.org/latest-in-cardiology/articles/2016/05/18/13/58/diagnosing-type-2-myocardial-infarction)

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## Code Assignment

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It is imperative to reference the exact diagnostic statement in the coding index and tabular

in order to find the correct code. There are different codes for demand ischemia NOS versus type 2 myocardial infarction. Also, keep in mind that documentation of “type 2 demand ischemia” is reported using the same code as demand ischemia NOS.

I24.89 – Demand ischemia without mention of myocardial infarction (CC)

I21.A1 – The only available code for a type 2 myocardial infarction (MCC)

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## Sequencing

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In ICD-10-CM, there is an instructional note under type 2 myocardial infarction which instructs coders to code first, if applicable, the underlying cause. Therefore, whenever the underlying cause of the type 2 myocardial infarction is documented, that cause must be sequenced first. Effective October 1, 2024, if no cause is known, the type 2 myocardial infarction may be sequenced first when it qualifies as the principal diagnosis.

### References

American Hospital Association’s ICD-10-CM Coding Book and Coding Clinic for ICD-10-CM/PCS, Fourth Quarter 2024, Page 59.

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## About Livanta

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Livanta is the national Medicare Claim Review Services contractor under the Beneficiary and Family Centered Care – Quality Improvement Organization (BFCC-QIO) Program. As the Claim Review Services contractor, Livanta validates the DRG on hospital claims that have been adjusted to pay at a higher weight. The adjusted claim is reviewed to ensure that the diagnoses, procedures, and discharge status of the patient reported on the hospital’s claim are supported by the documentation in the patient’s medical record. Livanta’s highly trained, credentialed coding auditors adhere to the accepted principles of coding practices to validate the accuracy of the hospital codes that affect the DRG payment. When needed, actively practicing physicians review for medical necessity and clinical validity based on the presence of supporting documentation and clinical indicators.

Post-payment review of these HWDRG adjustments is mandated under statute and in CMS QIO Manual: Perform DRG validation on prospective payment system (PPS) cases (including hospital-requested higher-weighted DRG assignments), as appropriate (see §1866(a)(1)(F) of the Act and 42 CFR 476.71(a)(4)).

**Read more:** CMS, Quality Improvement Organization Manual, Chapter 4 - Case Review

<https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/downloads/qio110c04.pdf>

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## Questions?

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Should you have questions, please email [ClaimReview@Livanta.com](mailto:ClaimReview@Livanta.com), or visit the claim review website for more information:

<https://www.livantaqio.cms.gov/en/ClaimReview/index.html>

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