Cohere Medicare Advantage Policy - 3D Rendering of Imaging Studies

Clinical Guidelines for Medical Necessity Review

Version: 1
Effective Date: February 6, 2025

Important Notices

Notices & Disclaimers:

GUIDELINES ARE SOLELY FOR COHERE'S USE IN PERFORMING MEDICAL NECESSITY REVIEWS AND ARE NOT INTENDED TO INFORM OR ALTER CLINICAL DECISION-MAKING OF END USERS.

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Other Notices:

Guideline Information:

Specialty Area: Diagnostic Imaging
Guideline Name: Cohere Medicare Advantage Policy - 3D Imaging
Date of last literature review: 2/3/2025
Document last updated: 2/5/2025
Type: [**X**] Adult (18+ yo) | [**X**] Pediatric (0-17 yo)

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Medical Necessity Criteria

Service: 3D Rendering of Imaging Studies

Benefit Category

Not applicable.

Please Note: This may not be an exhaustive list of all applicable Medicare benefit categories for this item or service.

Related CMS Documents

Please refer to the CMS Medicare Coverage Database for the most current applicable CMS National Coverage.

- There are no applicable NCDs or LCDs for 3D rendering of imaging studies.

Recommended Clinical Approach

Three-dimensional (3D) rendering of imaging studies is a technique that is performed by organizing thin sections of 2D images to reconstruct a 3D image. The resulting 3D image can enhance hard-to-visualize structures and therefore help to better visualize a pathology and guide clinical management. This technique is also known as 3D reconstruction or 3D reformation. 3D rendering can be performed for ultrasound (US), echocardiography, CT, MRI, MRA, CTA, DSA, and other tomographic imaging modalities. 3D reconstruction is not to be utilized to report coronal, sagittal, multiplanar, or oblique reformats constructed from axial imaging. 3D reformatting should not be standard protocol for US, MRI, and CT scanning.

Evaluation of Clinical Harms and Benefits

Cohere Health uses the criteria below to ensure consistency in reviewing the conditions to be met for coverage of 3D rendering of imaging studies. This process helps to prevent both incorrect denials and inappropriate approvals of medically necessary services. Specifically, limiting incorrect approvals reduces the risks associated with unnecessary procedures, such as complications from surgery, infections, and prolonged recovery times.

The potential clinical harms of using these criteria may include:

- There is a possibility of inadequate visualization of pathologies that are denied 3D rendering using these criteria; however, the policy was written based on the current clinical knowledge base and best radiological practices.
- There is no direct risk to the patient, as 3D rendering is performed after the initial imaging.
- Increased healthcare costs and complications from the inappropriate use of emergency services and additional treatments.

The potential clinical benefits of using these criteria include:

- Reduced spending due to the complete visualization of pathology without the need for advanced, resource-intensive imaging.
- Appropriate, advanced visualization of certain conditions, particularly in the preoperative setting, necessitating complete characterization prior to other invasive interventions. Adequate visualization may confer a reduced operative time, shorter duration under anesthesia, complete repair or excision of an anomaly, and therefore improved patient outcomes.
- Enhanced overall patient satisfaction and healthcare experience.

This policy includes provisions for expedited reviews and flexibility in urgent cases to mitigate risks of delayed access. Evidence-based criteria are employed to prevent inappropriate denials, ensuring that patients receive medically necessary care. The criteria aim to balance the need for effective treatment with the minimization of potential harms, providing numerous clinical benefits in helping avoid unnecessary complications from inappropriate care.

In addition, the use of these criteria is likely to decrease inappropriate denials by creating a consistent set of review criteria, thereby supporting optimal patient outcomes and efficient healthcare utilization.

Medical Necessity Criteria

Indications

➔ **3D Imaging** is considered medically necessary if **ALL** of the following are **TRUE**[2]:

- When 3D imaging is required in order to obtain complete diagnostic information that would be critical to clinical management and cannot be ascertained through traditional (2D or multiplanar reformatted) imaging[2]; **AND**
- **ANY** of the following is true:
  - The patient requires preoperative planning for a complex surgical case[2]; **OR**
  - The patient has a known or suspected tumor with invasion of adjacent structure, such that 3D imaging may impact treatment[1-5]; **OR**
  - The patient has vascular system pathology with planned procedural intervention, including **ANY** of the following[6-15]:
    - Aneurysms[6-15]; **OR**
    - Vascular abnormalities or malformations[6-15]; **OR**
  - Preprocedural and postprocedural evaluation of organ transplantation[29-32]; **OR**
  - Orthopedic imaging for **ANY** of the following[16-21]:
    - Spine surgery; **OR**
    - Acetabular osteotomy; **OR**
    - Wrist fracture; **OR**
    - Facial trauma; **OR**
    - Intra-articular fracture; **OR**
    - Other complex fractures with or without dislocation of any joint; **OR**
  - Evaluation of congenital craniofacial abnormalities[27,28]; **OR**
  - Other not previously specified conditions wherein 3D image rendering would provide information that cannot otherwise be obtained by traditional 2D imaging or multiplanar reformatted images, and such information is critical to clinical management[22-24]; **OR**
  - Repeat 3D imaging (defined as repeat request following recent 3D imaging of the same anatomic region with the same modality), in the absence of established guidelines, will be considered reasonable and necessary if **ANY** of the following is **TRUE**[2]:
    - New or worsening symptoms, such that repeat imaging would influence treatment[2]; **OR**
    - One-time clarifying follow-up of a prior indeterminate finding[2]; **OR**

- In the absence of change in symptoms, there is an established need for monitoring which would influence management[2].

Non-Indications

➔ **3D Imaging** is not considered appropriate if **ANY** of the following is **TRUE**:

- The patient has undergone 3D imaging of the same body part within 3 months without undergoing treatment or developing new or worsening symptoms; **OR**
- When used with an imaging study that is considered not medically necessary; **OR**
- For routine use by the imaging facility without specifically being ordered by the requesting physician.[2]

Level of Care Criteria

Outpatient

Procedure Codes (CPT/HCPCS)

CPT/HCPCS Code	Code Description
76376	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; not requiring image postprocessing on an independent workstation
76377	3D rendering with interpretation and reporting of computed tomography, magnetic resonance imaging, ultrasound, or other tomographic modality with image postprocessing under concurrent supervision; requiring image postprocessing on an independent workstation

Disclaimer: G, S, I, and N Codes are non-covered per CMS guidelines due to their experimental or investigational nature.

Medical Evidence

Three-dimensional (3D) rendering of imaging studies is an enhanced visualization technique that generates a reconstructed 3D image. This is utilized to provide a better view of specific structures and guide clinical management in certain clinical scenarios. 3D imaging is most commonly used in the preoperative setting to aid in surgical or procedural planning. It is also beneficial when visualizing congenital anomalies, including vascular malformations. Importantly, 3D reconstruction is distinct from coronal, sagittal, multiplanar, or oblique reformatting constructed from axial imaging. It is a highly specialized adjunct to traditional imaging that is limited in use due to the excellent diagnostic accuracy of 2D imaging.

3D imaging is of particular use with musculoskeletal pathologies, such as a patient with traumatic fractures. The principal intent of 3D imaging in this setting is to improve patient outcomes by limiting the need for post-operative revision. Certain fracture locations - including orbital fractures - are unable to be visualized directly and therefore benefit from 3D reconstruction. 3D imaging of eligible pathologies allows orthopedic surgeons to optimize their surgical approach, reduce operative time, and improve precision.[16-21]

A 2020 study in the *Journal of Vascular Surgery* provided clinical validation of 3D reconstruction of abdominal aortic aneurysms (AAAs), demonstrating a significantly improved reproducibility as compared to 2D imaging and mitigating the known challenges associated with 2D imaging, including operator-dependent variability which impacts accurate visualization and diagnosis of potentially unstable aneurysms.[12]

When reserved for clinical scenarios that benefit most from complete, three-dimensional visualization, 3D rendering of imaging studies can be a valuable adjunct for diagnosing and treating specific pathologies.

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Clinical Guideline Revision History/Information

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