

Quantitative Multiparametric Magnetic Resonance (Quantitative mp-MR)

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For the Current Procedural Terminology (CPT®) 2022 code set two new Category III codes (0697T, 0698T) were established and two codes (0648T, 0649T) were revised to report quantitative multiparametric magnetic resonance (mp-MR) for analysis of tissue composition. This article provides an overview of these changes.

Category III Codes

✘ **0648T** Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained without diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure) during the same session; single organ

✘ (Do not report 0648T in conjunction with 0649T, 0697T, 0698T, when also evaluating same organ, gland, tissue, or target structure) ✘

✘ **0697T** multiple organs

✘ (Do not report 0648T, 0697T in conjunction with 70540, 70542, 70543, 70551, 70552, 70553, 71550, 71551, 71552, 72141, 72142, 72146, 72147, 72148, 72149, 72156, 72157, 72158, 72195, 72196, 72197, 73218, 73219, 73220, 73221, 73222, 73223, 73718, 73719, 73720, 73721, 73722, 73723, 74181, 74182, 74183, 75557, 75559, 75561, 75563, 76390, 76498, 77046, 77047,

77048, 77049, 0398T, when also evaluating same organ, gland, tissue, or target structure) ❌

❌ (Do not report 0697T in conjunction with 0648T, 0649T, 0698T, when also evaluating same organ, gland, tissue, or target structure) ❌

❌❌ **0649T** Quantitative magnetic resonance for analysis of tissue composition (eg, fat, iron, water content), including multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained with diagnostic MRI examination of the same anatomy (eg, organ, gland, tissue, target structure); single organ (List separately in addition to code for primary procedure)

❌ (Do not report 0649T in conjunction with 0648T, 0697T, 0698T, when also evaluating same organ, gland, tissue, or target structure) ❌

#❌❌ **0698T** multiple organs (List separately in addition to code for primary procedure)

❌ (Use 0649T, 0698T in conjunction with 70540, 70542, 70543, 70551, 70552, 70553, 71550, 71551, 71552, 72141, 72142, 72146, 72147, 72148, 72149, 72156, 72157, 72158, 72195, 72196, 72197, 73218, 73219, 73220, 73221, 73222, 73223, 73718, 73719, 73720, 73721, 73722, 73723, 74181, 74182, 74183, 75557, 75559, 75561, 75563, 76390, 76498, 77046, 77047, 77048, 77049, 0398T, when also evaluating same organ, gland, tissue, or target structure) ❌

❌ (Do not report 0698T in conjunction with 0648T, 0649T, 0697T, when also evaluating same organ, gland, tissue, or target structure) ❌



Quantitative mp-MR involves the processing of MR data to measure and assess tissue composition, including measuring liver fat and pancreas fat, and assessing the presence of fibro-inflammatory disease, pancreas fibrosis, and cardiac fibrosis. The new and revised codes will allow for the reporting of the acquisition, analysis, and interpretation of quantitative mp-MR data from single or multiple organs, distinguished by whether the quantitative analysis was obtained with or without diagnostic MR imaging (MRI) of the same anatomy during the same session. Of note, the report requires inclusion of quantitative values related to tissue composition, and not only qualitative assessment.

Codes 0648T and 0649T were revised to specify that these codes are reported for procedures performed on a single organ. Codes 0648T and 0649T include quantitative MR analysis of tissue composition, multiparametric data acquisition, data preparation and transmission, interpretation and report, obtained with (0649T) or without (0648T) diagnostic MRI examination of the same anatomy. The language in the code descriptors specifies that analysis of the tissue composition may include fat, iron, or water content, but correctly reporting these codes is not necessarily limited to these quantitative analyses. The code descriptors also specify that when performing the service, the “same anatomy” may include the same organ, gland, tissue, or target structure.

In conjunction with the revision of codes 0648T and 0649T and the establishment of codes 0697T and 0698T for multiple organs, parenthetical notes were added to provide instruction on the appropriate reporting of this new series of codes with other codes throughout the CPT code set, and also to provide instructions on when the performance of these services also involves the evaluation of the same organ, gland, tissue, or target structure.

The following clinical examples and procedural descriptions reflect typical clinical scenarios for which these new codes would be appropriately reported.

Clinical Example (0648T)

A 56-year-old male presents with metabolic syndrome and abnormal liver function tests. An abdominal ultrasound showed evidence of hepatic steatosis. The patient is referred for quantitative multiparametric MRI of the liver obtained without diagnostic MRI for noninvasive assessment of steatohepatitis.

Description of Procedure (0648T)

The physician reviews the request for service to clarify indications and determine clinical questions that need to be answered by the multiparametric MRI. Obtain scout views of the area to select the appropriate field of view and confirm adequate positioning. Obtain and review MRI sequences to check for motion or banding artifacts. Repeat the acquisition if artifacts are identified. Process the data through an algorithm that generates parametric maps. Obtain postprocessed metrics of liver iron (T2*), proton density fat fraction (PDFF), and fibroinflammatory disease (corrected T1 [cT1]). The physician then reviews and interprets all sequences resulting from the study and multiparametric MRI data. This approach allows the physician to determine the location of the disease burden. Compare data to all pertinent available prior examinations. Prepare, dictate, and document a report in the patient's record. Communicate the study results to the referring physician to facilitate appropriate patient management.

Clinical Example (0697T)

A 44-year-old female presents with fatigue, shortness of breath, headache, and muscle pain that have persisted for several weeks after confirmed exposure to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) (coronavirus disease 2019 [COVID-19]). The patient is referred for quantitative multiparametric MRI of multiple organs obtained without diagnostic MRI for noninvasive assessment of suspected post-acute COVID-19 syndrome.

Description of Procedure (0697T)

Refer the patient to an imaging center where she will be scanned with the relevant MRI protocol. Set up the patient in the scanner, acquire and use scout views of the upper body to select the appropriate field of view for the rest of the acquisitions, and confirm adequate patient positioning. Acquire the organ-specific images using different MRI sequences to enable the radiologist to correctly set up the parameters, instruct the patient (breathing instructions), and check for specific artifacts. Repeat the acquisitions if substantial artifacts are identified. Process the data through an algorithm that generates parametric maps. Obtain and compile manually PDFF and cT1; pancreas fat (PDF) and fibrosis (T1); cardiac function (left ventricle ejection fraction, left ventricle end diastolic volume, stroke volume, inflammation [T1] and size [left ventricle muscle mass], left ventricle muscle wall thickness); kidney size; spleen size; and lung capacity for the physician to interpret. The physician then reviews and interprets all the metrics resulting from the study and the multiparametric MRI data. Compare the data to all pertinent available prior examinations. Prepare, dictate, and document a report in the patient's record. Communicate the study results to the referring physician and make the results available to other QHPs to facilitate appropriate patient management as needed.

Clinical Example (0649T)

A 45-year-old male with hemochromatosis presents for evaluation of iron deposition and hepatocellular carcinoma screening. The patient is referred for quantitative multiparametric MRI for noninvasive assessment of hemochromatosis and abdominal MRI for hepatocellular carcinoma screening. [**Note:** This is an add-on service. Only consider the additional work related to quantitative multiparametric MRI of single organs.]

Description of Procedure (0649T)

The physician reviews the request for service to clarify indications and determine clinical questions that need to be answered by the multiparametric MRI. Obtain scout views of the area to select the appropriate field of view and confirm adequate positioning. Obtain and review MRI sequences to check for motion or banding artifacts. Process the data through an algorithm that generates parametric maps. Obtain postprocessed metrics of liver iron (T2*), PDF, and cT1. The physician then reviews and interprets all sequences resulting from the study and multiparametric magnetic resonance data. Obtain separate abdominal MRI sequences to assess for potential lesions and organ changes. Evaluate and compare included anatomic structures of the abdomen with any available pertinent prior examinations. Prepare, dictate, and document a report that includes quantitative multiparametric MRI data and abdominal MRI findings in the patient's record. Communicate the study results to the referring physician to facilitate appropriate patient management.

Clinical Example (0698T)

A 47-year-old male presents with fatigue, joint pain, and palpitations that have persisted for several weeks after confirmed exposure to COVID-19. The patient is referred for quantitative multiparametric MRI of multiple organs obtained with diagnostic MRI for noninvasive assessment of suspected post-acute COVID-19 syndrome. [**Note:** This is an add-on service. Only consider the additional work related to quantitative multiparametric MRI of multiple organs.]



Description of Procedure (0698T)

The physician reviews the request for service to clarify indications for procedure and determine the clinical questions that need to be answered by the multiparametric MRI of multiple organs. Refer the patient to an imaging center where he will be scanned with the relevant MRI protocol. Set up the patient in the scanner, acquire and use scout views of the upper body to select appropriate field of view for the rest of the acquisitions, and confirm adequate patient positioning. Acquire the organ-specific images using different MRI sequences to enable the radiologist to correctly set up the parameters, instruct the patient (breathing instructions), and check for specific artifacts. Repeat the acquisitions if substantial artifacts are identified. Process the data through algorithms that generate parametric maps. Obtain and compile manually PDFF and cT1; PDF and fibrosis (T1); cardiac function (left ventricle ejection fraction, left ventricle end diastolic volume, stroke volume, inflammation [T1] and size [left ventricle muscle mass], left ventricle muscle wall thickness); kidney size; spleen size; and lung capacity. Obtain separate MRI sequences to assess for potential lesions and organ changes. The physician then reviews and interprets all the metrics resulting from the study, the sequences, and the multiparametric MRI data. This approach allows the physician to determine the location of the disease burden. Evaluate and compare the included anatomic structures of each additional organ with any available pertinent prior examinations. Prepare, dictate, and document a report that includes quantitative multiparametric MRI data and MRI findings in the patient's record. Communicate the study results to the referring physician and make the results available to other QHPs to facilitate appropriate patient management as needed.