Radiology Cost Per Admission Alternative Reimbursement Model (CPA ARM) Methodology

December 2024

Contents

OVERVIEW

This document describes the methodology for the Discovery Health Radiology Cost Per Admission Alternative Reimbursement Model (CPA ARM) Contract. The intention of the contract is to reward radiology practices for managing total radiology expenditure per admission in hospitals across all admissions. A higher than fee for service (FFS) tariff increase will be afforded to practices who contract in this agreement. This higher tariff applies to radiology costs paid from in=-hospital and out-of-hospital risk benefits.

The contract measures actual radiology cost per admission relative to a benchmark cost per admission, where all admissions are taken into account regardless of whether radiology was billed or not. Benchmarks are differentiated to take into account the underlying case mix of admissions, by providing a benchmark per diagnosis related group (DRG). The DRGs take into consideration ICD10 coding and CCSA procedure coding. A settlement is calculated based on the difference between the actual cost per admission and the benchmark cost per admission across all admissions. Where the actual cost per admission exceeds the benchmark a settlement is due from the radiology practice to Discovery Health Medical Scheme (DHMS) and where this is lower, a settlement is payable from DHMS to the radiology practice.

The effective measurement period for the contract is for claims incurred during 1 January 2025 to 31 December 2025.

PRACTICE ELIGIBILITY CRITERIA

Radiology practices will be expected to:

1. have at least one hospital-based facility
2. offer all standard radiology services including MRI, CT, Ultrasound, and black and white x-rays
3. have the highest market share at a hospital-based facility; and
4. take accountability for all referred radiology meeting the ARM inclusion/exclusion criteria listed below within the hospital-based facility.

For practices acquiring another practice during the measurement period, the purchasing entity would need to continue to provide billing information relating to the purchased practice. Should a practice no longer wish to participate in the ARM as a result of a merger or acquisition during the measurement period, notice needs to be given to Discovery Health in writing within 30 days of the merger/acquisition and if any value was funded to the practice to accommodate for a higher tariff, that Rand value must be settled back to DHMS.

Periods included

- 2024 – the base period on which the benchmark is calculated, and inflated by annual tariff changes to 2025 terms
- 2025 – current period on which hospital costs will be compared to the benchmark

Radiology costs

Costs included relate to in-hospital expenditure for radiology practices (practice type 38).

Admissions are included where a hospital authorisation was approved and an amount of more than half a day's ward fee was paid under the hospital authorisation to a valid private hospital facility.

Radiology costs are assessed on an annual basis based on the year in which the admission began. In instances when an admission begins in a particular year and continues into the subsequent year, amounts paid for that admission are tariff adjusted. The tariff adjustment allows for the costs to be comparable to the year of the admission[1].

Schemes

Radiology costs relating to DHMS are included in the contract.

[1]For example, consider an admission that starts in 2024 and ends in 2025. The amounts paid in 2025 will be adjusted downwards by the 2025 tariff increase to be in 2024 terms.

METHODOLOGY

Benchmark costs per admissions are calculated at a Diagnostic Related Grouper (DRG) and hospital level (explained below) across the industry and these are compared to actual costs to derive a settlement. The benchmark is calculated using 2024 costs inflating for annual tariff increases to provide a benchmark in 2025 terms.

Radiology costs are included for all practices that were open in 2024 regardless of whether the practice closed post 2024.

Benchmark calculation

To calculate the benchmark cost per admission, there are exclusions applied to the data both from clinical and statistical perspectives to ensure that there is reasonable credibility in the benchmarks calculated. The following adjustments are made to the data before the benchmark calculation and each of these adjustments are explained in more detail:

- Adjusting for network discounts
- Clinical exclusions (related to interventional radiology)
- Clinical carve outs (related to nuclear radiology)
- Dealing with multiple radiology practices at a hospital
- Risk adjustment/Grouping admissions
    - Dealing with low referral rates per DRG
    - Volume criteria per DRG
    - Dealing with variability within DRGs

Adjusting for network discounts

Discounts are removed by inflating the costs where discounts have been negotiated for network plans. This ensures that any changing mix of claims by plan types does not influence the contractual settlement amount. The final settlement amount will be based an efficiency percentage, calculated as the sum across actual CPA vs benchmark CPA divided by the sum of benchmarks across admissions meeting the inclusion criteria. This percentage will be applied to actual radiology expenditure (with discounts applied) to obtain a final settlement amount.

Clinical exclusions

Admissions are excluded where interventional radiology was billed. Please see Appendix B for a list of these codes.

Clinical carve outs

All costs relating to Nuclear Medicine are removed from the overall admission cost. Please see Appendix C for a list of these codes.

Multiple radiology practices at a hospital

Hospitals may have more than one radiology practice providing services. To account for multiple radiology practices at a hospital, the market share of radiology costs of all radiology practices at a hospital is determined. When a radiology practice has a market share of less than 20% of radiology costs at that hospital, the admissions in which the radiology practice has billed are excluded.

Risk adjustment/grouping of admissions (DRGs)

To ensure a like-for-like comparison between radiology costs for each admission, all admissions are grouped into clinically appropriate groups using DRGs. DRGs are derived from the acute coding on the hospital admissions using ICD-10 and CCSA procedure codes. Most base DRGs have three severity levels: (i) without, (ii) with complications and (iii) with major complications and /or comorbidities. For the purpose of this contract, severity levels within a base DRG are combined where the overall costs per admission are within 10% of each other within a base DRG. For the purpose of this document, these will still be referred to as contract DRGs. A list of these DRGs is given in Appendix A of Radiology CPE ARM Appendices workbook at the end of the document.

DRG inclusion/exclusion criteria

Dealing with low referral rates per contract DRG

A referral rate for every radiology practice is determined by taking the number of admissions where radiology was billed as a proportion of all admissions within a base DRG (a high-level grouping of DRG which does not take the level of complication into account within the DRG). All admissions associated with base DRGs with a referral rate lower than 10% are excluded.

Volume criteria per contract DRG

Contract DRGs with less than 50 admissions within the DRG across all hospitals are excluded.

Variability within contract DRGs

To measure the variability within the contract DRGs on a cost per admission basis, the coefficient of variation (CV) is calculated as the standard deviation of radiology costs divided by the average across all radiology costs. Radiology costs are based on discounts removed excluding nuclear radiology.
For the purposes of reducing the variability of the contract DRGs used, those DRGs with a CV of greater than 1.5 are excluded.

Error DRGs

Admissions with a mismatch in diagnosis and procedure coding are excluded, e.g. an admission coded with a primary ICD10 code of pneumonia and an unrelated procedure e.g. hip replacement. These admissions, together with admissions with other primary ICD10 codes not recognised by the DRG system, are categorised as error DRGs, and are all collectively excluded.

Once all the above exclusions and carve outs are applied for each contract DRG, an average cost per admission (CPA) is calculated at each hospital, by dividing all radiology costs for that contract DRG, by all admissions in that hospital for the contract DRG (regardless of whether radiology was billed or not).

$$CPA_{Hospital\ A,DRG\ A} = \frac{\sum Radiology\ Costs_{2019,,DRG\ A}}{All\ Admissions_{DRG\ A}}$$

The benchmark is set at the 40th percentile of the industry (all hospitals) for each contract DRG. This implies that 40% of facilities have an associated CPA that is at or below the benchmark for the contract DRG.

Tariff adjustment to benchmark

The benchmark CPAs are increased by the applicable tariff increase to ensure that they are in the current period's terms. Because benchmarks are calculated based on 2019 costs, this is adjusted by the 2020, 2021, 2022 and 2023 tariff increases shown in the table below.

Year	Tariff increase
2019-2020	3.6%
2020-2021	3.5%
2021-2022	3.81%
2022-2023	4%
2023-2024	2%
2024-2025	2%

ASSIGNING A PRINCIPAL RADIOLOGY PRACTICE TO A HOSPITAL

Settlements are calculated at a hospital level. One radiology practice is assigned to a hospital based on the radiology practice having the highest market share of radiology costs in that hospital. The radiology practice will take responsibility for managing all radiology costs in the hospitals that it is assigned to. Where a radiology practice is assigned to multiple hospitals, settlements will be calculated for each hospital and then aggregated to arrive at single settlement figure for that practice. The radiology practice needs to agree to take responsibility for all hospitals to which it is assigned.

CALCULATING SETTLEMENT PER HOSPITAL

All the exclusions and carve outs that are applied in the benchmark calculation are also applied to the actual experience. For each contract DRG, the actual CPA is compared to the tariff adjusted benchmark CPA. The difference between these CPAs is taken and multiplied by all admissions occurring at each hospital within a contract DRG.

$$Settlement_{\ DRG\ A,Hospital\ A} = \sum_{All\ Admissions\ DRG\ A,Hospital\ A} \left(Radiology\ Costs_{\ DRG\ A,2023} - Benchmark_{\ DRG\ A}\right)$$

These are summed over all contract DRGs with at least 5 admissions to determine a settlement for the hospitals allocated to that radiology practice. Where the actual radiology cost per admission exceeds the benchmark, there is a settlement due to DHMS from the radiology group; similarly, where the actual radiology cost per admission is below the benchmark, there is a settlement due from DHMS to the radiology group equal to the difference between the actual and benchmark amounts.

Because the discounts have been removed from both the actual and benchmark amounts, to arrive at the final settlement, the discounts need to be reapplied to ensure that the settlement is based on actual money paid. To do this, the settlement summed over all DRGs for each hospital is scaled down by the percentage discounts paid which is defined as amount paid with discounts removed divided by discounts applied.

The final settlement calculation is therefore:

$$Settlement_{\ Hospital\ A} = \frac{\sum_{All\ DRGs} Settlement_{\ DRG}}{Discount\ Factor}$$

Where Discount factor is

$$Discount\ Factor = \frac{\sum Radiology\ Paid\ Discounts\ Removed}{\sum Radiology\ Paid\ Discounts\ Applied}$$

CALCULATING SETTLEMENT PER RADIOLOGY PRACTICE

The ARM settlement per radiology group is defined as the sum of all settlements of the hospitals for which the practice is assigned as the principal radiologist. The ARM settlement is shared between DHMS and the radiology practice split 40% and 60% respectively. This means that if the there is a settlement due to DHMS from the radiology practice, 60% of the settlement will be payable from the radiology practice to DHMS. Where there is a settlement due from DHMS to the radiology practice, 40% of the settlement will be payable by Discovery to the radiology practice.

The ARM settlement amount will be calculated and paid annually retrospectively. ARM settlement amounts will be calculated and invoiced by end April the following year, to minimise the impact of incurred but not reported claims on measurement. ARM settlement payments are subsequently due for payment by the latest the 31th of July 2026.

QUARTERLY PAYMENTS FOR THE HIGHER TARIFF LOADING

The difference between the actual tariff payable to all radiology practices and the higher tariff for those practices in the ARM contract will be calculated and settled quarterly.

APPENDICES

The Appendices workbook includes the following:

- Sheet 1: Appendix A. List of DRGs
- Sheet 2: Appendix B. List of excluded Interventional radiology codes.
- Sheet 3: Appendix C. List of excluded Nuclear radiology codes.

See Appendices workbook attached.