

Instructions: MRI Methodology Modeling Tool

Everything in the "Locked" file is locked except for the values in the **green** cells on the **CONTROL** tab and the "types" tab. You may change the values in the green cells to adjust methodology parameters. You may change any values anywhere in the "Unlocked" version of the file. The tool also includes columns that serve as reminders of the current methodology values in case you want to change your test values back to the current methodology's values. Even though the parameters address fixed scanners only, the need determination calculations include mobile scanners in the same way that the current methodology does.

Definitions

Reporting year (RY):	The year ending September 30 for which data is reported. The tool allows for use of either 2019 or 2020 as the reporting year.
Projection year:	The year for which needs are projected.
Base outpatient (OP) scan:	An outpatient scan without contrast, sedation, or any other <u>typical</u> situation that would require additional time.
Base inpatient (IP) scan:	An inpatient scan without contrast, sedation, or any other <u>typical</u> situation that would require additional time.
Contrast:	Use of contrast or sedation, or any other <u>typical</u> additional task/situation that requires additional time. Keep in mind that each facility/mobile site must be able to identify "contrast" scans separately from base scans.

You may make changes however you wish, but we suggest following these steps:

Step 1: Calculation of Adjusted Scans

The current methodology calculations use weights, rather than actual procedure times. A base OP scan receives a weight of "1" and is equivalent to 30 minutes (i.e., base OP scans are not weighted). The weights for all other types of scans are multipliers of that base time of 30 minutes. The "types" tab shows the case times submitted by the workgroup members.

Instead of entering weights, enter the typical Procedure Time (in minutes) in B3-B6 that you think are appropriate for each type of scan. The model will transform these minutes into weights for further calculations.

Step 2: Annual Scanner Operational Capacity

The operational capacity is used to calculate the Adjusted Threshold (H8).

You may change the numbers in C10 and C11 to reflect the number of weeks per year and hours per week that you believe the typical fixed scanner should be in operation (i.e., staffed and available to perform scans).

The current methodology assumes that a typical scanner is operational for the equivalent of 11 hours per day for 6 days per week. It is unclear how or whether the current methodology's parameters take into account hospitals, where it may be reasonable to assume that at least one scanner will be operational 24/7.

The current methodology calculates the total operational capacity assuming 2 base OP scans per hour. If you change the value in B3 (from Step 1), the tool will change the number in C12 to reflect the number of OP base scans that can be completed in 1 hour.

Step 3: Projection Parameters

Projection (F4): If you enter a value of "0" in F4 and make no other changes, this duplicates the projection approach used in the current methodology; i.e., it does not project future need. Entering a value of "1" yields a projection of need 3 years beyond the last day of the reporting year.

Projection Type (G4): Enter a value of "1" in G4 to use only the reporting year as the starting point for projecting future utilization. Enter a value of "3" in G4 to use data reflecting the average annual change rate in adjusted scans over the most recent 3 reporting years as the starting point for projecting future utilization.

Negative Population Growth (H4): The modeling tool includes population growth in the calculation of need determinations. Projected utilization is increased in proportion to the 3-year population growth of the service area (i.e., projected from the reporting year to the projection year).

Entering a "1" in H4 reflects the actual 3-year population change, even if it is negative. Entering a "0" in H4 forces the model to ignore population decline; i.e., the calculations assume that the population will remain stable over the coming 3-year period.

Step 4: Planning Thresholds

Number of Fixed Scanners in Service Area (F9-F13): In the current methodology, the number of fixed scanners in a service area is related to the assumption of the economy of scale that the county can produce. Thus, more scanners produce more efficiency. The number of fixed scanners in a service area includes CON-approved

scanners not yet operational and placeholders for prior year need determinations for which a CON has not yet been issued, in addition to operational fixed scanners.

The current distribution of scanners differs substantially from the distribution at the time the methodology was implemented. Based on the current distribution, we have entered our suggested values in F10-F12.


- 50 (The value is actually a range of 6 to 50. Currently, no county has more than 27 scanners, but using a much larger maximum allows for more scanners in future years. This cell cannot be changed.)
- 5 (which is actually 3-5, i.e., more than 2 but no more than 5)
- 2
- 1
- 0 (This cell cannot be changed)

Values must be entered in descending order of magnitude.

If you reject the notion that the number of scanners in a service area should continue to be part of the methodology, enter "50" in F10-F12.

Planning Threshold: Assume there is no methodology and no requirement to obtain a CON. At what level of utilization at your facility would you start the process to obtain an additional fixed scanner? Ideally, this answer would be the basis for setting the thresholds. Enter this percentage (in decimal form) in G9-G13.

Step 5: Need Determinations

Now you are ready to see the results of your test model. Before you do so, you must reapply the filter. Click on the funnel icon  in the "needs" cell and press the "OK" button to see the new needs.

Results of your test model begin in F18. Column F shows each County with a need. Column G shows the number of scanners needed using the 2019 Reporting Year as the starting point for the calculations. Column H shows the number of scanners needed using the 2020 Reporting Year as the starting point for the calculations. We decided to show both years because 2019 is the most recent "normal" year. We included 2020 to show how needs would change with no adjustment for the decreased 2020 utilization due to the pandemic. If a new methodology is implemented for the 2023 SMFP, the reporting year will be 2021.

The current methodology limits the need determinations to 1 scanner per service area. We removed this ceiling so that you can see the actual calculated number of scanners needed. This is not a policy proposal, but simply a mechanism to show actual calculations without the limitation in the current methodology.

The next page shows the calculations used in the modeling process.

Calculations

Let a = number of weighted scans

a₁ = number of weighted scans for lookback year 1 (2 years before reporting year)

a₂ = number of weighted scans for lookback year 2 (1 year before reporting year)

a₃ = number of weighted scans for lookback year 3 (reporting year)

Projection Type = 1

Use reporting year utilization and population growth only.

$$z = a_3 + (y \times a_3)$$

$$\text{Need determination} = \frac{z}{t}$$

Projection Type = 3

Use 3 years utilization and population growth to project need.

av = the average annual change rate in of weighted scans across a₁, a₂, and a₃

$$av = \frac{\left(\frac{a_2 - a_1}{a_1} + \frac{a_3 - a_2}{a_2}\right)}{2}$$

x = number of adjusted scans used in methodology calculations

$$x = a_3 + (av \times a_3)$$

y = population (p) change from reporting year (p_r) to projection year (p_p - 3 years beyond reporting year)

$$y = \frac{p_p - p_r}{p_r}$$

z = projected number of scans in the projection year

$$z = x + (y \times x)$$

t = need threshold for service area (based on scanner capacity)

$$\text{Need determination} = \frac{z}{t}$$