UnitedHealth Premium® program cost-efficiency evaluation and rating example

Use this document with the UnitedHealth Premium program Methodology document at **UnitedHealthPremium.uhc.com.** Please review all methodology documents to understand the entire Premium program methodology.

Overview

The Premium program uses a 5-step process to evaluate the physician's cost-efficiency performance and assigns a cost-efficiency rating.

1	2	3	4	5
Count patients or episodes	**Establish target benchmark**	**Determine physician performance**	**Determine evaluation result**	**Assign cost-efficiency rating**

We've provided an example to help you understand how each step in the process works. You can follow each step to see how we evaluate a fictional Dr. Smith's cost-efficiency performance for patient total cost.

Step 1: Count patients or episodes

A. Put patient total costs or patient episode costs into treatment sets according to the same type of patients or episodes.

B. Count the total number of patients or episodes attributed to the physician. A minimum of 10 patients or episodes is required to proceed to step 2. If the minimum is not met, proceed directly to step 4.

In this example, Dr. Smith has 5 attributed patients out of 13 total patients representing 2 treatment sets. For illustrative purposes, this example contains fewer than the required minimum number of patients.

Treatment Set 1 Characteristics	
Premium specialty	Cardiology
Patient population	Commercial
Product/network	Choice Plus
Geographic area	Columbus, Ohio
Inclusion of pharmacy cost	Not Included
Risk level	1
Patients (ranks) attributed to Dr. Smith	2
Total patients (ranks) in treatment set	6

Treatment Set 2 Characteristics	
Premium specialty	Cardiology
Patient population	Commercial
Product/network	Choice Plus
Geographic area	Columbus, Ohio
Inclusion of pharmacy cost	Not Included
Risk level	3
Patients (ranks) attributed to Dr. Smith	3
Total patients (ranks) in treatment set	7

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Step 2: Establish target benchmark

Establish target benchmark at the 75th percentile cost level.

A. Calculate the median rank.
Formula: Median rank = (number of total ranks + 1) / 2
In this example, the median rank is (6 + 7 +1) / 2 = 7.

B. Calculate the expected sum of ranks.
Formula: Expected sum of ranks = median rank * physician ranks
In this example, the expected sum of ranks is 7*(2 + 3) = 35.

C. Calculate the standard deviation (SD).
Formula: Standard deviation = square root (((physician ranks * (total ranks - physician ranks)) * (median rank * 2)) / 12)
In this example, the standard deviation is square root (((5*(13 - 5)) * (7*2)) / 12) = 6.8313.

D. Calculate the target benchmark by adding the applicable proportion of an SD to the expected sum of ranks. Formula:
Target benchmark = expected sum of ranks + (SD coefficient for 75th percentile level * SD)
In this example, the target benchmark is 35 + (.6745 * 6.8313) = 39.61.

Step 3: Determine physician performance

A. Calculate the expected cost for each treatment set, including those where the physician doesn't have an attributed patient or episode. This is done by first capping the costs within the treatment sets at the 95th percentile (for patient total cost, this is done using unadjusted costs). Then, the costs are summed and divided by the number of patients or episodes within the treatment set.

In this example, treatment set 1 has an expected cost of $1,500 + 600 + 1,700 + 1,000 + 500 + 700 / 6 = $1,000. Treatment set 2 has an expected cost of $2,000 + 2,300 + 2,500 + 3,400 + 900 + 1,300 + 1,600 / 7 = $2,000.

Treatment set 1		
Patient	**Attributed physician**	**Unadjusted capped cost**
Patient 1	Physician 1	$1,500
Patient 2	Physician 2	$600
Patient 3	Physician 2	$1,700
Patient 4	Physician 3	$1,000
Patient 5	Dr. Smith	$500
Patient 6	Dr. Smith	$700
Expected cost		$1,000

Treatment set 2		
Patient	**Attributed physician**	**Unadjusted capped cost**
Patient 7	Physician 1	$2,000
Patient 8	Physician 2	$2,300
Patient 9	Physician 3	$2,500
Patient 10	Physician 4	$3,400
Patient 11	Dr. Smith	$900
Patient 12	Dr. Smith	$1,300
Patient 13	Dr. Smith	$1,600
Expected cost		$2,000

B. Determine treatment set weight. This is done by first identifying the treatment set with the lowest expected cost irrespective of Premium specialty, patient population, product/network and geographic area. This treatment set receives a weight of 1. All other treatment sets receive a weight, rounded to the nearest whole number, equal to the treatment set's expected cost divided by the expected cost of the lowest cost treatment set.

In this example, treatment set 1 has the lowest expected cost and receives a weight of 1. Treatment set 2 receives a weight of $2,000 / 1,000 = 2.

C. Convert costs to percentiles.

i. For each treatment set with a weight greater than 1, duplicate the patient total costs or patient episode costs by the number of times equal to the treatment set's weight.

ii. Order the costs from low to high

iii. Convert costs to percentiles

In this example, the ordered costs and cost percentiles are shown in the following table.

Treatment Set 1			
Patient	**Attributed physician**	**Cost**	**Cost percentile**
Weight = 1			
Patient 5	**Dr. Smith**	**$500**	**14.3**
Patient 2	Physician 2	$600	28.6
Patient 6	**Dr. Smith**	**$700**	**42.9**
Patient 4	Physician 3	$1,000	57.2
Patient 1	Physician 1	$1,500	71.4
Patient 3	Physician 2	$1,700	85.7

Treatment Set 2			
Patient	**Attributed physician**	**Cost**	**Cost percentile**
Weight = 2			
Patient 11	**Dr. Smith**	**$900**	**10.0**
Patient 11 (Duplicated)	**Dr. Smith**	**$900**	**10.0**
Patient 12	**Dr. Smith**	**$1,300**	**23.3**
Patient 12 (Duplicated)	**Dr. Smith**	**$1,300**	**23.3**
Patient 13	**Dr. Smith**	**$1,600**	**36.7**
Patient 13 (Duplicated)	**Dr. Smith**	**$1,600**	**36.7**
Patient 7	Physician 1	$2,000	50.0
Patient 7 (Duplicated)	Physician 1	$2,000	50.0
Patient 8	Physician 2	$2,300	63.3
Patient 8 (Duplicated)	Physician 2	$2,300	63.3
Patient 9	Physician 3	$2,500	76.7
Patient 9 (Duplicated)	Physician 3	$2,500	76.7
Patient 10	Physician 4	$3,400	90.0
Patient 10 (Duplicated)	Physician 4	$3,400	90.0

For illustrative purposes, this example uses the same costs pre and post adjustment.

D. Assign a rank to each cost percentile.

i. Combine the cost percentiles from both weighted treatment sets that include patient total costs or patient episode costs attributed to the physician to create the physician's combined weighted treatment set. The combined weighted treatment set contains the cost percentiles for the physician as well as his or her peers.

ii. Order the cost percentiles from low to high.

iii. Assign a rank from 1 (lowest) to N (highest). For patient total costs or patient episode costs with the same cost percentile, the rank is the average of the ordinal ranks divided by the number of items with the same cost percentile.

In this example, the ordered cost percentiles, ordinal ranks and assigned ranks are shown in the following table.

Dr. Smith's combined weighted treatment set					
Patient	**Attributed physician**	**Treatment set 1 cost percentile**	**Treatment set 2 cost percentile**	**Ordinal rank**	**Assigned rank**
Patient 11	**Dr. Smith**		**10.0**	**1**	**1.5**
Patient 11 (duplicated)	**Dr. Smith**		**10.0**	**2**	**1.5**
Patient 5	**Dr. Smith**	**14.3**		**3**	**3**
Patient 12	**Dr. Smith**		**23.3**	**4**	**4.5**
Patient 12 (duplicated)	**Dr. Smith**		**23.3**	**5**	**4.5**
Patient 2	Physician 2	28.6		6	6
Patient 13	**Dr. Smith**		**36.7**	**7**	**7.5**
Patient 13 (duplicated)	**Dr. Smith**		**36.7**	**8**	**7.5**
Patient 6	**Dr. Smith**	**42.9**		**9**	**9**
Patient 7	Physician 1		50.0	10	10.5
Patient 7 (duplicated)	Physician 1		50.0	11	10.5
Patient 4	Physician 3	57.2		12	12
Patient 8	Physician 2		63.3	13	13.5
Patient 8 (duplicated)	Physician 2		63.3	14	13.5
Patient 1	Physician 1	71.4		15	15
Patient 9	Physician 3		76.7	16	16.5
Patient 9 (duplicated)	Physician 3		76.7	17	16.5
Patient 3	Physician 2	85.7		18	18
Patient 10	Physician 4		90.0	19	19.5
Patient 10 (duplicated)	Physician 4		90.0	20	19.5

E. Sum the physician's cost percentile assigned ranks in the combined treatment set.
In this example, Dr. Smith's sum of ranks is 1.5 + 1.5 + 3 + 4.5 + 4.5 + 7.5 + 7.5 + 9 = 39.

F. Create the adjustment factor. The weighting method creates artificially high sample sizes, which narrow the confidence intervals and make the distribution tails artificially large. The adjustment factor back-transforms the physicians' sum of ranks to the original confidence intervals.

i. Calculate the median rank for the combined weighted treatment set.
Formula: Median rank = (number of total ranks + 1) / 2
In this example, the median rank is (20 +1) / 2 = 10.5.

ii. Calculate the expected sum of ranks for the combined weighted treatment set.
Formula: Expected sum of ranks = median rank * physician ranks
In this example, the expected sum of ranks is 10.5*8 = 84.

iii. Calculate the standard deviation (SD) for the combined weighted treatment set.
Formula: Standard deviation = square root (((physician ranks * (total ranks - physician ranks)) * (median rank * 2)) / 12)
In this example, the standard deviation is square root (((8*(20 - 8)) * (10.5*2)) / 12) = 12.9615.

iv. Adjust the expected sum of ranks for the combined weighted treatment set to the 75th percentile by adding the applicable proportion of an SD to the expected sum of ranks.
Formula: Adjusted sum of ranks = expected sum of ranks + (SD coefficient for 75th percentile level * SD)
In this example, the adjusted sum of ranks at the 75th percentile for the combined weighted treatment set is 84 + (.6745 * 12.9615) = 92.74.

v. Calculate the adjustment factor
Formula: Adjustment factor = target benchmark / adjusted sum of ranks
In this example the adjustment factor is: 39.61 / 92.74 = .4271.

G. Determine physician performance.
Formula: Physician performance = physician sum of ranks * adjustment factor
In this example, Dr. Smith's performance is 39 * .4271 = 16.7.

Step 4: Determine evaluation result

Determine if the physician's cost-efficiency performance is statistically less than the target benchmark with 90% confidence by calculating the z-score, which is the number of standard deviations between the physician's cost-efficiency performance and the target benchmark.
Formula: z-score = (physician's performance - target benchmark) / SD
In this example, (16.7 - 39.61) / 6.8313 = -3.3537.

A z-score less than -1.2816 means the physician's cost-efficiency performance is statistically less than the target benchmark. The physician meets the Premium program cost-efficient care criteria when the physician meets the Premium program quality-care criteria and the physician's cost-efficiency performance is statistically less than the target benchmark.

Z-score	Quality evaluation result	Cost-efficiency evaluation result
Less than -1.2816	Meets criteria	Meets criteria
	Not evaluated/does not meet criteria	Does not meet criteria
Equal to or greater than -1.2816	Any result	Does not meet criteria
Not calculated[1]	Meets criteria	Not evaluated
	Not evaluated/does not meet criteria	Does not meet criteria

In this example, Dr. Smith meets the Premium program quality-care criteria, and Dr. Smith's cost-efficiency performance is statistically less than the target benchmark. Therefore, Dr. Smith's cost-efficiency evaluation result is Meets Criteria.

Step 5: Assign cost-efficiency rating

A cost-efficiency rating is a classification of physicians based on a comparative assessment of their cost-efficiency performance. Cost-efficiency ratings range from A to G, with A being the most cost efficient and G being the least cost efficient. The cost-efficiency ratings are assigned as follows.

Cost Efficiency Percentile Level	Rating
< 10th	A
< 25th	B
< 50th	C
< 75th	D
Not different than 75th	E
< 90th	F
< 90th	G

Physicians who do not have enough data to evaluate are assigned an E rating.

A. Calculate the adjusted expected sum of cost ranks at the 10th, 25th, 50th, 75th and 90th percentile levels by adding or subtracting the applicable proportion of an SD to the expected sum of cost ranks at the 50th percentile.
Formula: Adjusted expected sum of cost ranks = expected sum of ranks + (SD coefficient for percentile level * SD)
In this example, 35 from step 2b above + (coefficient from column II below * 6.8313 from step 2c above) = column III below.

B. Determine the physician's cost-efficiency performance compared to each adjusted expected sum of cost ranks by calculating the z-score.

Z-score	Performance
< -1.2816	Less than
-1.2816 to 1.2816	Not different
> -1.2816	Higher than

Formula: Z-score = (physician's performance - adjusted expected sum of cost ranks) / SD
In this example, (16.7 from step 3g above - value from column III below) / 6.8313 from step 2c above = column IV below.

Dr. Smith's combined weighted treatment set				
I	II	III	IV	V
Percentile level	**Proportional SD coefficient**	**Adjusted expected sum of cost ranks**	**Dr. Smith's Z-score**	**Dr. Smith's performance**
10	-1.2816	26.25	-1.3980	Less Than
25	-0.6745	30.39	-2.0040	Less Than
50	0	35.00	-2.6788	Less Than
75	0.6745	39.61	-3.3537	Less Than
90	1.2816	43.75	-3.9604	Less Than

Dr. Smith's cost-efficiency performance is less than the adjusted expected sum of cost ranks at the 10th percentile level. Therefore, Dr. Smith is assigned a cost efficiency rating of A.

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Important notes about the UnitedHealth Premium Program

The information from the UnitedHealth Premium program is not an endorsement of a particular physician or health care professional's suitability for the health care needs of any particular member. UnitedHealthcare does not practice medicine nor provide health care services. Physicians are solely responsible for medical judgments and treatments supplied. A "Premium Care Physician" or "Quality Care Physician" designation does not guarantee the quality of health care services members will receive from a physician and does not guarantee the outcome of any health care services members will receive.

Likewise, the fact that a physician has a "Not Evaluated for Premium Care" or a "Does Not Meet Premium Quality Criteria" designation does not mean that the physician does not provide quality health care services. All physicians in the UnitedHealthcare network have met certain minimum credentialing requirements. Regardless of whether a physician has received a "Premium Care Physician" designation, members have access to all physicians in the UnitedHealthcare network, as further described under the member's benefit plan.

The designation of "Not Evaluated for Premium Care" is given when a physician does not practice in a specialty that is evaluated by the Premium program, or when a physician's evaluation is in process. It is also given when a physician does not have enough health plan claims data to be evaluated, but it is not an indicator of the total number of patients treated by the physician, or the number of procedures performed by the physician. Rather, it reflects the statistical requirements of the Premium program, which includes only health plan claims associated with specific Premium program measures and relevant to the physician's specialty. In some cases, there may not be enough data to complete the analytic process from a statistical standpoint.

UnitedHealthcare informs members that designations are intended only as a guide when choosing a physician and should not be the sole factor in selecting a physician. As with all programs that evaluate performance based on analysis of a sample, there is a risk of error. There is a risk of error in the claims data used in the evaluation, the calculations used in the evaluation, and the way the Premium program determined that an individual physician was responsible for the treatment of the patient's condition. **Physicians have the opportunity to review this data and submit a reconsideration request**.

UnitedHealthcare uses statistical testing to compare a physician's results to expected or normative results. There is a risk of error in statistical tests when applied to the data and a result based on statistical testing is not a guarantee of correct inference or classification. We inform members it is important they consider many factors and information when selecting a physician. **We also inform our members that they may wish to discuss designations with a physician before choosing him or her, or confer with their current physician for advice on selecting other physicians.**

The information contained in this Cost-Efficiency Evaluation and Rating Example document is subject to change.

Learn more

UnitedHealth Premium Program I UnitedHealthPremium.uhc.com
9700 Health Care Lane, MN017-W700, Minnetonka, MN 55343

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