UnitedHealth Premium Efficiency and cost of care evaluation example

Additional UnitedHealth Premium® methodology documents are located on **unitedhealthpremium.uhc.com.**

Overview

UnitedHealth Premium uses a 5-step process to separately evaluate the physician's efficiency of care and cost of care performance.

1	2	3	4	5
Count patients or episodes	**Establish target benchmark**	**Assess performance**	**Calculate rating and rank**	**Determine evaluation result**

We've provided an example for a fictional Dr. Smith to help you understand each step in the process.

Step 1: Count patients or episodes

A Put patient annual 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.

In this example, Dr. Smith has 5 attributed patients out of 13 total patients representing two treatment sets.

For illustrative purposes, this example contains fewer than the required minimum number of patients.

Treatment set 1	
Peer specialty	Cardiology
Patient population	Commercial
Product/network	Choice Plus
Peer geography	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	
Peer specialty	Cardiology
Patient population	Medicare[1]
Product/network	Medicare Advantage
Peer geography	Columbus, Ohio
Inclusion of pharmacy cost	Included
Risk level	3
Patients (ranks) attributed to Dr. Smith	3
Total patients (ranks) in treatment set	7

[1]This is an efficiency of care example. To evaluate cost of care, Premium only uses health plan claims data for patients enrolled in UnitedHealthcare commercial fee-for-service plans.

Step 2: Establish target benchmark

Establish the target benchmark at the 75th percentile.

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: √ (((physician ranks * (total ranks – physician ranks)) * (median rank * 2)) / 12) **In this example, the SD is √ (((5 *(13 – 5)) * (7 * 2)) / 12) = 6.8313.**

D Calculate the target benchmark by adding the applicable proportion of a SD to the expected sum of ranks.
Formula: Expected sum of ranks + (SD coefficient for 75th percentile * SD)
In this example, the target benchmark is 35 + (0.6745 * 6.8313) = 39.61.

Step 3: Assess performance

A Calculate the expected cost for each treatment set, including those where the physician does not have an attributed patient or episode. This is done by capping the costs within the treatment sets at the 95th percentile (for patient annual cost, this is done using unadjusted costs). 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. Identify the treatment set with the lowest expected cost irrespective of peer specialty, patient population, product/network, and peer geography. 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 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
Formula: 1 / (N+1) with N representing the total patient ranks in the treatment set

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**	**12.5**
Patient 11 (duplicated)	**Dr. Smith**	**$900**	**12.5**
Patient 12	**Dr. Smith**	**$1,300**	**25.0**
Patient 12 (duplicated)	**Dr. Smith**	**$1,300**	**25.0**
Patient 13	**Dr. Smith**	**$1,600**	**37.5**
Patient 13 (duplicated)	**Dr. Smith**	**$1,600**	**37.5**
Patient 7	Physician 1	$2,000	50.0
Patient 7 (duplicated)	Physician 1	$2,000	50.0
Patient 8	Physician 2	$2,300	62.5
Patient 8 (duplicated)	Physician 2	$2,300	62.5
Patient 9	Physician 3	$2,500	75.0
Patient 9 (duplicated)	Physician 3	$2,500	75.0
Patient 10	Physician 4	$3,400	87.5
Patient 10 (duplicated)	Physician 4	$3,400	87.5

Premium uses normalized costs for the efficiency of care evaluation. Normalized cost is a standardized fee schedule designed to assign uniform, consistent, nationally based costs to service lines to remove inherent unit cost variation. Premium uses actual allowed costs for the cost of care evaluation. For illustrative purposes, this example uses the same pre- and post-adjustment costs.

D Assign a rank to each cost percentile.

i. Combine the cost percentiles from both weighted treatment sets to create the physician's combined weighted treatment set. The combined weighted treatment set contains the cost percentiles for the physician as well as their peers.

ii. Order the cost percentiles from low to high

iii. Assign a rank from 1 (lowest) to N (highest). For costs with the same percentile, the rank is the average of the ordinal ranks divided by the number of items with the same 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**		**12.5**	**1**	**1.5**
Patient 11 (duplicated)	**Dr. Smith**		**12.5**	**2**	**1.5**
Patient 5	**Dr. Smith**	**14.3**		**3**	**3**
Patient 12	**Dr. Smith**		**25.0**	**4**	**4.5**
Patient 12 (duplicated)	**Dr. Smith**		**25.0**	**5**	**4.5**
Patient 2	Physician 2	28.6		6	6
Patient 13	**Dr. Smith**		**37.5**	**7**	**7.5**
Patient 13 (duplicated)	**Dr. Smith**		**37.5**	**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		62.5	13	13.5
Patient 8 (duplicated)	Physician 2		62.5	14	13.5
Patient 1	Physician 1	71.4		15	15
Patient 9	Physician 3		75.0	16	16.5
Patient 9 (duplicated)	Physician 3		75.0	17	16.5
Patient 3	Physician 2	85.7		18	18
Patient 10	Physician 4		87.5	19	19.5
Patient 10 (duplicated)	Physician 4		87.5	20	19.5

E Sum the physician's 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 adjustment factor back-transforms the sum of ranks to the original confidence intervals.

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

iii. Calculate the SD for the combined weighted treatment set.
Formula: √ (((physician ranks * (total ranks – physician ranks)) * (median rank * 2)) / 12)
In this example, the SD is √ (((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 a SD to the expected sum of ranks.
Formula: 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 + (0.6745 * 12.9615 from step F iii above) = 92.74.

v. Calculate the adjustment factor.
Formula: Adjustment factor = minimum score benchmark/adjusted sum of ranks
In this example the adjustment factor is 39.61 / 92.74 = 0.4271.

G Determine performance.
Formula: Target benchmark/adjusted sum of ranks
In this example the adjustment factor is 39.61/92.74 = 0.4271.

Step 4: Calculate rating and rank

Physicians whose performance is not statistically different than the target benchmark at the 75th percentile receive a rating of Meets Benchmark. Physicians whose performance is statistically different than that target benchmark receive a rating of Exceeds Benchmark or Below Benchmark depending on the direction of the difference.

A Calculate the adjusted sum of ranks at the 10th, 50th, 75th, and 90th percentiles (from column I below) by adding the applicable proportion of a SD to the expected sum of ranks at the 50th percentile.
Formula: Expected sum of ranks + (SD coefficient for percentile level * SD)
In this example, 35 from step 2B + (coefficient from column II below* 6.8313 from step 2C) = column III below.

B Determine if performance is statistically different than the adjusted expected sum of ranks with 90% confidence by calculating the z-score.
Formula: Z-score = (performance – adjusted expected sum of ranks) / SD
In this example, (16.7 from step 3G – value from column III in the following grid) / 6.8313 from step 2C = column IV in the following grid.

Performance is statistically different than the expected sum of ranks when the z-score is greater than 1.2816 (statistically higher) or less than -1.2816 (statistically lower).

I	II	III	IV
Percentile	**Proportional SD coefficient**	**Expected sum of ranks**	**Dr. Smith's z-score**
10	-1.2816	26.25	-1.3980
50	0	35.00	-2.6788
75	0.6745	39.61	-3.3537
90	1.2816	43.75	-3.9597

Physicians are assigned a rank as follows based on their performance percentile.

Percentile	Rank
<10th	A
<50th	B
<75th	C
Not enough data to evaluate	D
Not different than 75th	E
>75th	F
>90th	G

In this example, Dr. Smith's performance is statistically lower than the expected sum of ranks at the 10th percentile. Therefore, Dr. Smith's rank is A.

Step 5: Determine evaluation result

The physician meets the efficiency of care or cost of care criteria when the physician's rating meets or exceeds the 75th percentile target benchmark.

In this example, Dr. Smith's rating is Exceeds Benchmark. Therefore, Dr. Smith's meets the efficiency of care or cost of care criteria.

Important notes about UnitedHealth Premium

The information from UnitedHealth Premium is not an endorsement of a particular physician or health care professional's suitability for the health care needs of any member. UnitedHealthcare does not practice medicine nor provide health care services. Physicians are solely responsible for medical judgments and treatments.

A Premium Care Physician designation does not guarantee the quality or the outcome of any health care services members receive. The fact that a physician does not have a Premium Care Physician designation does not mean 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 described in the member's benefit plan.

There are various reasons why a physician may not be designated as a Premium Care Physician. A physician may not receive a designation because that physician has not been evaluated. This occurs when a physician does not practice in a specialty or market that is evaluated by Premium, or the physician's evaluation is in process. This also occurs when there are not enough measures, patients, and/or episodes attributed to the physician for evaluation. This is not an indicator of the total number of patients treated by the physician, or the number of procedures performed by the physician.

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. Members are encouraged to discuss designations with a physician before choosing them or consult with their current physician(s) for advice on selecting other physicians.

As with all programs that evaluate performance based on evaluation of a sample, there is a risk of error. There is a risk of error in the claims data used and in the way patient care is attributed to physicians. UnitedHealth Premium uses statistical testing to compare a physician's performance to benchmarks. 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. Physicians have the opportunity to review the data and evaluation results and may submit requests for changes and/or corrections.

The information contained in this document is subject to change.

Learn more

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