Calculating the National Nursing Home Quality Care Collaborative Quality Composite Measure Score

By using quality improvement practices, and through eliminating healthcare acquired conditions, nursing homes can utilize the National Nursing Home Quality Care Collaborative (NNHQCC) Quality Composite Measure Score (composite score) to obtain an overview of progress occurring in their processes and performance improvement projects. The composite score combines multiple quality measures to produce a single score. This information can be greater than the sum of its parts because it paints a more complete picture. *The initial goal for every nursing home would be to achieve the rate of six or lower on the composite score.*

The composite score is comprised of 13 *long-stay* quality measures:

1. Percent of residents who self-report moderate to severe pain
2. Percent of high-risk residents with a pressure ulcer
3. Percent of residents physically restrained
4. Percent of residents with one or more falls with major injury
5. Percent of residents who received antipsychotic medications
6. Percent of residents who have depressive symptoms
7. Percent of residents with a urinary tract infection (UTI)
8. Percent of residents with catheter inserted or left in bladder
9. Percent of low-risk residents who lose control of their bowels or bladder
10. Percent of residents who lose too much weight
11. Percent of residents whose need for help with activities of daily living (ADL) has increased
12. Percent of residents assessed and appropriately given the flu vaccine*
13. Percent of residents assessed and appropriately given the Pneumococcal vaccine*

These quality measures were selected as they represent connected processes as well as being influenced by larger systems within the nursing home.

How to calculate the composite score

The composite score is calculated by summing the 13 measure numerators to obtain the composite numerator, summing the 13 measure denominators to obtain the composite denominator, then dividing the composite numerator by the composite denominator and multiplying by 100. This method of calculation is based on the "opportunity model" concept:

- The Numerator represents the number of times an opportunity was missed (the resident triggered on the Quality Measure).

- The Denominator represents the total number of residents that could have the opportunity (all residents who could have triggered on the Quality Measure).

The formula is:

$$\frac{\text{Numerator (missed opportunities/residents that triggered)}}{\text{Denominator (total opportunities/residents who could trigger)}} \times 100 = \text{Composite Score}$$

*The direction of the two vaccination measures should be reversed because they are directionally opposite of the other measures. This is done by subtracting the numerator from the denominator to obtain a "new" numerator. By keeping all measure directions consistent, the composite score can be interpreted as: the lower, the better.

Example:

Quality Measure:	Numerator	Denominator
1. Percent of residents who self-report moderate to severe pain	2	70
2. Percent of high-risk residents with a pressure ulcer	6	50
3. Percent of residents physically restrained	0	71
4. Percent of residents with one or more falls with major injury	5	71
5. Percent of residents who received antipsychotic medications	21	70
6. Percent of residents who have depressive symptoms	15	66
7. Percent of residents with a UTI	3	52
8. Percent of residents with catheter inserted or left in bladder	3	68
9. Percent of low-risk residents who lose control of their bowels or bladder	10	29
10. Percent of residents who lose too much weight	10	70
11. Percent of residents whose need for help with ADL has increased	12	56
12. Percent of residents assessed and appropriately given flu vaccine*	68	69
13. Percent of residents assessed and appropriately given Pneumococcal vaccine*	70	71
reverse flu	*1*	*69*
reverse Pneumonia	*1*	*71*
Totals for 1 – 11 plus using the reverse for flu/pneumonia	89	813
numerator/denominator	0.109471095	
numerator/denominator x 100	10.9%	
composite score:	**10.9%**	