

Description of Physical Functioning Activities of Daily Living (PFADL)

Physical Functioning Activities of Daily Living (PFADL) is a longitudinal change measure derived from the Medicare Health Outcomes Survey (HOS). It measures, at the contract level, the change over two years in the physical functioning of beneficiaries enrolled in Medicare Advantage (MA) contracts and complements the measurement of physical health status. The PFADL scale combines two physical functioning (PF) questions (limitations in moderate activities and climbing stairs) with the six activities of daily living (ADL) questions (see Appendix A) to create a Likert-type scale. PFADL scale scores are created from responses to the baseline and the two-year follow-up questions.

The newly developed change measure score can be interpreted as the percent of function retained by average MA beneficiaries over two years compared to a maximum decline. Predicted PFADL change scores are estimated from a regression model that case-mix adjusts for baseline function. Contract-level change scores are on a 0-100 scale, with 100 equivalent to all MA beneficiaries retaining 100% of baseline function over two years and 0 corresponding to every beneficiary in the MA contract experiencing maximum decline. In contrast to HEDIS measures, the PFADL change measure score for an MA contract is its mean change score rather than the proportion passing the measure. The PFADL change score has good reliability and is positively correlated with both physical component summary (PCS) and mental component summary (MCS) scores calculated from HOS. A more detailed methodology used to score the PFADL change measure is described below.

Scoring the PFADL Change Measure

The eligible sample used to assess the longitudinal PFADL measure consists of all MA beneficiaries aged 65 or older at HOS baseline measurement for whom baseline and follow-up PCS or MCS scores were available and who had calculable baseline and follow-up PFADL scale scores.

Step 1: To create the PFADL Baseline and Follow Up scale scores, each PF and ADL item is scored from 0-2 points, where a physical limitation or inability to perform an ADL = 0 points, some limitation or difficulty = 1 point, and no limitation or difficulty = 2 points, both at Baseline and Follow Up. The unadjusted PFADL scale scores are the sum of the points from the 8 items; these scores range from 0 to 16.00, where a higher score is better. The unadjusted PFADL change score = Follow-up scale score – Baseline scale score.

The PFADL scale scores fall within four baseline groups: Group 1 (highest scores) = 12.01-16.00, Group 2 = 8.01-12.00, Group 3 = 4.01-8.00 and Group 4 (lowest scores) = 0-4.00.

The average beneficiary in Group 1, with a baseline unadjusted PFADL score > 12.00, has a lower PFADL score at follow-up than at baseline. However, beneficiaries in Group 4 at baseline, with unadjusted PFADL scores ≤ 4.00 points, have a higher unadjusted PFADL score at follow-up than at baseline on average. Such a pattern would give MA contracts with larger proportions of low-functioning beneficiaries an advantage on this measure in the absence of adjustment, since such seniors are more likely to improve.

Step 2: The case-mix adjusted PFADL change score = Unadjusted PFADL change score from Step 1 – Predicted PFADL change score + Overall grand mean (see Appendix B for a list of variables included in the case-mix model). Predicted PFADL change scores are derived from a linear regression model predicting change score from (a) linear baseline PFADL scores and (b) an indicator for baseline function in Group 4 (scores of 0-4.00) versus all other groups.

Step 3: The case-mix adjusted PFADL change scores from Step 2 are truncated for extreme values by recoding to -8.00 all values < -8.00 and recoding to +2.00 all values > +2.00. A PFADL change score could range from -16.00 to +16.00, but a change score of +16.00 is not possible for beneficiaries with highest initial functioning (Group 1; scores of 12.01-16.00). Similarly, a change score of -16.00 is not possible for beneficiaries with lowest initial functioning (Group 4; scores of 0-4.00). Truncation thus requires a final adjustment to case-mix adjustment.

Step 4: The Step 4 score = 2 if the Step 3 score is ≥ 0.58 . The Step 4 score = Step 3 score + 1.42 if the Step 3 score is < 0.58. This approach ensures that the expected score for Group 4 does not differ from other baseline groups, while preserving limits of -8.00 and +2.00.

Step 5: The Step 4 score is transformed for interpretability using the formula: Step 5 score = $12.5 \times \text{Step 4 score} + 100.00$, so that 100.00 corresponds to no change in functioning and 0 is the worst possible score¹.

Step 6: The Step 5 transformed beneficiary-level case-mix adjusted PFADL change scores are averaged across beneficiaries to create contract-level scores. Contract-level scores exceeding 100 are re-set to 100.

¹ Step 5 beneficiary-level scores can range from 0-125; scores over 100 correspond to increases in function from baseline.

Appendix A: HOS Questions used for PFADL Scale

2. The following items are about activities you might do during a typical day. Does **your health now limit you** in these activities? If so, how much?
- a. **Moderate activities**, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf
- Yes, limited a lot
 - Yes, limited a little
 - No, not limited at all
- b. Climbing **several** flights of stairs
- Yes, limited a lot
 - Yes, limited a little
 - No, not limited at all
10. Because of a health or physical problem, do you have any difficulty doing the following activities **without special equipment or help from another person**?
- a. Bathing
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity
- b. Dressing
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity
- c. Eating
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity
- d. Getting in or out of chairs
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity
- e. Walking
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity
- f. Using the toilet
- No, I do not have difficulty
 - Yes, I have difficulty
 - I am unable to do this activity

Appendix B: Case-Mix Adjustment of PFADL Change Score

Predicted beneficiary-level PFADL change scores are estimated in a linear regression model from two case-mix variables described below:

1. Linear baseline PFADL scale scores
2. A dichotomous indicator (1/0) for lowest baseline function (“Group 4” scores of 0-4.00) versus all other groups.

Therefore, predicted PFADL change score = baseline PFADL scale score + indicator for Group 4 scores.

The case-mix adjustment model for beneficiary-level PFADL change scores (i.e., Step 2) is as follows:

Adjusted PFADL change score = Unadjusted PFADL change score – Predicted PFADL change score + Overall grand mean of the Unadjusted PFADL change score.