

Expanded HHVBP Model: Calculating Episode-Level Observed Values for the Total Normalized Composite (TNC) Change Measures

The Centers for Medicare & Medicaid Services (CMS) expanded Home Health Value-Based Purchasing (HHVBP) Model* includes two (2) Total Normalized Composite (TNC) Change measures:

- **TNC Change in Mobility (TNC Mobility)**
- **TNC Change in Self-Care (TNC Self-Care)**

TNC Change measures capture the magnitude of change—positive (*i.e.*, more independent), negative (*i.e.*, more dependent), and no change—for multiple Outcome and Assessment Information Set (OASIS) items, listed in **Exhibit 1**.

Exhibit 1. OASIS items used in the TNC Change Measures

TNC Change Measure OASIS Items (maximum change)	
TNC Mobility: 3 Items	TNC Self-Care: 6 Items
M1840 – Toilet Transferring (4)	M1800 – Grooming (3)
M1850 – Bed Transferring (5)	M1810 – Upper Body Dressing (3)
M1860 – Ambulation/Locomotion (6)	M1820 – Lower Body Dressing (3)
	M1830 – Bathing (6)
	M1845 – Toileting Hygiene (3)
	M1870 – Eating (5)

The calculations for TNC Change measures are based on eligible home health episodes for patients covered by Medicare fee-for-service (FFS), Medicare Advantage, or Medicaid (FFS or managed care), ending with a discharge from the agency (OASIS M0100 = 9) during the reporting period. Patients who are non-responsive at start of care are excluded from these measures. For episodes ending on or after 1/1/2023, TNC Change measure calculations exclude OASIS M2420 = 3 (patient transferred to a non-institutional hospice).

Risk Adjustment**

TNC Change measures included in expanded HHVBP Model performance reports are risk-adjusted at the home health agency (HHA) level to account for differences in patient clinical and functional characteristics using the following formula:

$$(\text{Observed Value} - \text{Predicted Value}) + \text{National Predicted Value} = \text{Risk-Adjusted Value}$$

This resource details episode-level **observed value** calculations for the TNC Change measures.

* Further details about the inclusion of the TNC measures in the expanded HHVBP Model are available in the Calendar Year (CY) 2022 Home Health Prospective Payment System (HH PPS) [final rule](#).

** Refer to the [Expanded HHVBP Model webpage](#) for additional information and technical specifications on risk adjustment for the TNC Change measures.

The episode-level **observed value** for a TNC Change measure is the **sum of normalized change** from start of care (SOC)/resumption of care (ROC) to end of care (EOC) across the OASIS items included in the measure. Observed values range from -3 to +3 for TNC Mobility and from -6 to +6 for TNC Self-Care.

Normalized change for each OASIS item in a TNC Change measure is calculated using the following formula:

$$\frac{(SOC/ROC - EOC)}{\text{Maximum Change}} = \text{Normalized Change}$$



Example: Calculating TNC Change Measures observed values using simulated SOC/ROC and EOC assessment data

TNC Mobility OASIS Items	$\frac{(SOC/ROC - EOC)}{\text{Maximum Change}}$	Normalized Change
M1840 – Toilet Transferring	$\frac{(2-0)}{(4)}$	0.500
M1850 – Bed Transferring	$\frac{(2-0)}{(5)}$	0.400
M1860 – Ambulation/Locomotion	$\frac{(5-2)}{(6)}$	0.500
TNC Mobility Observed Value <i>Sum of Normalized Change</i>		1.400

TNC Self-Care OASIS Items	$\frac{(SOC/ROC - EOC)}{\text{Maximum Change}}$	Normalized Change
M1800 – Grooming	$\frac{(3-1)}{(3)}$	0.667
M1810 – Upper Body Dressing	$\frac{(2-0)}{(3)}$	0.667
M1820 – Lower Body Dressing	$\frac{(3-0)}{(3)}$	1.000
M1830 – Bathing	$\frac{(5-2)}{(6)}$	0.500
M1845 – Toileting Hygiene	$\frac{(2-0)}{(3)}$	0.667
M1870 – Eating	$\frac{(1-0)}{(5)}$	0.200
TNC Self-Care Observed Value <i>Sum of Normalized Change</i>		3.701



Additional Technical Specifications for the TNC Change Measures

Exclusions – SOC/ROC

Age: less than 18 years

Services: Receiving pre- and/or post-partum maternity services

Services: Receiving personal care only

OASIS M1700 – Cognitive Functioning: 4 – Totally dependent due to disturbances such as constant disorientation, coma, persistent vegetative state, or delirium

OASIS M1710 – When Confused: NA – Patient nonresponsive

OASIS M1720 – When Anxious: NA – Patient nonresponsive

TNC Change measure values shown in expanded HHVBP Model performance reports are calculated by applying a prediction model to generate risk-adjusted measure values based on an HHA's average (across quality episodes) observed, average predicted, and the national average predicted measure values.

For information about risk models and risk adjustment methods, refer to the [Expanded HHVBP Model webpage](#).

As the TNC measures are unique to the expanded HHVBP Model and not used in the HH Quality Reporting Program (QRP), please direct questions regarding these measures to the HHVBP Help Desk, HHVBPquestions@lewin.com.

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