



2015 MA & PDP CAHPS Survey

Clarification on Scoring of Composite Measures



Use of Composite Measures

- Scores on questions about same topic are combined to form composite scores
- Items in a composite generally given equal weight
 - Exceptions: Getting Needed Prescription Drugs and Care Coordination
- Reports and Public Reporting are Based on Linear Mean Scores, not “Top Box” scores
- These Linear Mean Scores are Transformed to 0-100 for some purposes

Transformation to 0-100 scale

- CAHPS measures are transformed to 0-100 scale for reporting
 - Both single items and composites
- Transformed after calculation of means
 - 0 represents lowest possible mean score
 - 100 represents highest possible mean score

Formula for transformation to 0-100 scale

- Let X=the CAHPS score on its original scale, ranging from a minimum value of “a” to a maximum value of “b”
 - For item or composite using response options of *Always, Usually, Sometimes, Never*,
 - $a = 1$ (Never on all items), $b = 4$ (Always on all items)
 - For a 0-10 response scale,
 - $a = 0, b = 10$
- 0-100 score Y can be calculated as

$$Y = \frac{(X-a)*100}{(b-a)}$$

Linear Mean Scoring (1-4): Getting Needed Care

	How often easy to get appointments with specialists?	How often easy to get needed care, tests, or treatment?
Person 1	Always (4)	Sometimes (2)
Person 2	X	Never (1)
Person 3	Usually (3)	X
Average Score	3.5	1.5

Composite score = $(3.5+1.5)/2 = 2.5$

Conversion to 0-100 scale- Getting Needed Care Example

- 0-100 score Y can be calculated as

$$Y = \frac{(X-a)*100}{(b-a)}$$

$$Y = \frac{(2.5-1)*100}{(4-1)}$$

$$Y = \frac{(1.5)*100}{3}$$

$$Y = 50$$

Special case: Ease of filling prescriptions

- Two items on ease of filling prescriptions
 - Ease of using plan to fill prescriptions at a local pharmacy
 - Ease of using plan to fill prescriptions by mail

Combined into single item representing method(s) used by respondent

	... local pharmacy	... by mail	Combined item
Person 1	Sometimes (2)	(did not use)	2
Person 2	(did not use)	Always (4)	4
Person 3	Usually (3)	Always (4)	3.5

Combined score treated like single item in “Getting prescription drugs” composite

$$\text{Score} = (2 + 4 + 3.5) / 3 = \mathbf{3.167}$$

Conversion to 0-100 scale- Ease of Filling Rx Example

- 0-100 score Y can be calculated as

$$Y = \frac{(X-a)*100}{(b-a)}$$

$$Y = \frac{(3.167-1)*100}{(4-1)}$$

$$Y = \frac{(2.167)*100}{3}$$

$$Y = 72.22$$

Further Examples of transformation to 0-100

- Mean score on “Get care quickly” = 3.589
 - Transformed score = $(3.589 - 1) / (4 - 1) \times 100 = 86.3$



- Mean score on “Rating of plan” = 8.86
 - Transformed score = $(8.86 - 0) / (10 - 0) \times 100 = 88.6$

Overview of Scoring of Care Coordination Composite

- Six-item composite
- Item 4 has different response scale than other items
- Item 6 can be recoded based on responses to Item 5
- Details on following slides

Initial Scoring of the Care Coordination Composite

	Response Options
Item 1: Personal MD had medical records or other info about care	Never (1) Sometimes (2) Usually (3) Always (4)
Item 2: How often talk about RX medications	Never (1) Sometimes (2) Usually (3) Always (4)
Item 3: MD informed about care from specialists	Never (1) Sometimes (2) Usually (3) Always (4)
Item 4: Get needed help to manage care	No (2) Yes, somewhat (3) Yes, definitely (4)
Item 5: MD office follow up to give test results	Never (1) Sometimes (2) Usually (3) Always (4)
Item 6: Got test results as soon as needed	Never (1) Sometimes (2) Usually (3) Always (4)

Care coordination composite example: Initial responses

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6
Person 1	Usually	Always	Always	No	<u>Never</u>	<u>Sometimes</u>
Person 2	Always	Sometimes	X	Yes, definitely	Always	Sometimes
Person 3	Sometimes	Usually	Never	X	Sometimes	Never

Further Scoring of the Care Coordination Composite

- Special case: scoring of items 5 and 6
 - Those answering Item 5 as Never (1) are asked to skip Item 6
 - If Item 5 is Never (1), Item 6 is recoded to Never (1) regardless of whether or how Item 6 was answered
 - Items 5 and 6 are averaged to generate a single item score
- Composite score is the weighted average of 5 scores:
 - The scores for items 1-4
 - Average of items 5 and 6, after recoding 6 if needed

Care coordination composite example: Initial Scoring, including recoding

	Item 1	Item 2	Item 3	Item 4	Item 5	Item 6	Combined 5&6
Person 1	3	4	4	2	<u>1</u>	<u>1*</u>	<u>1</u>
Person 2	4	2	X	4	4	2	3
Person 3	2	3	1	X	2	1	1.5
Average Score	3	3	2.5	3			1.833

*This response was recoded to 1 (Never) because the response to Item 5 was 1 (Never)

Care coordination composite example: Creating a weighted linear mean and rescaling to 0-100

- Composite mean: $(3+3+2.5+3+1.833)/5=2.667$
- This is on a 1.2 to 4 scale, unlike other composites:
lowest possible= $(1+1+2+1+1)/5=1.2$
- Conversion to 0-100 scale:
$$Y=(2.667-1.2)/(4-1.2) \times 100=52.4$$