



# Scoring of MA & PDP CAHPS Survey Composite Measures



# Transformation to 0-100 Scale

- Linear mean scores for CAHPS measures are transformed to 0-100 scale for public reporting
  - Both single items and composites
- 0-100 transformation occurs after calculation of mean score
  - 0 represents lowest possible mean score
  - 100 represents highest possible mean score
- In plan reports, linear mean scores are also reported without transformation (calculated using the original response scale)

# Use of Composite Measures

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- 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

# 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
$$Y = \frac{(X-a)*100}{(b-a)}$$
- *Always, Usually, Sometimes, Never*, convert to 100, 66 2/3, 33 1/3, 0
- Ratings of 10, 4, 1, convert to 100, 40, 10

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

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

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: Getting Needed Prescription Drugs

- This composite covers two topics
  - *How often was it easy to use your plan to get the medicines your doctor prescribed*
  - Ease of filling prescriptions
- The first topic is assessed by one item. The second topic is assessed by combining two items:
  - *How often was it easy to use your plan to fill a prescription at your local pharmacy*
  - *How often was it easy to use your plan to fill a prescription by mail*

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

- The combined pharmacy/mail score is averaged with the first item's score to produce the composite score

# Linear Mean Scoring (1-4): Getting Needed Prescription Drugs

	How often was it easy to use your prescription drug plan to get the medicines your doctor prescribed?	Combined pharmacy/mail items
Person 1	Always (4)	2
Person 2	X	4
Person 3	Usually (3)	3.5
<b>Average Score</b>	<b>3.5</b>	<b>3.167</b>

Composite score =  $(3.5+3.167)/2 = 3.333$



# Conversion to 0-100 Scale: Getting Needed Prescription Drugs Example

- 0-100 score Y can be calculated as

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

$$Y = \frac{(3.333-1)*100}{(4-1)}$$

$$Y = \frac{(2.333)*100}{3}$$

$$Y = 77.77$$

# Further Examples of Transformation to 0-100

- Mean score on Getting Appointments and Care Quickly = 3.589

– Transformed score =  $(3.589 - 1) / (4 - 1) * 100 = 86.30$



- Mean score on Rating of Health Plan = 8.859
  - Transformed score =  $(8.859 - 0) / (10 - 0) * 100 = 88.59$

# Overview of Scoring of Care Coordination Composite

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- 6-item composite
- Item 4 has different response scale than other items
- Item 6 can be recoded based on responses to item 5
- Details appear on the 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
<b>Person 1</b>	Usually	Always	Always	No	<u>Never</u>	<u>Sometimes</u>
<b>Person 2</b>	Always	Sometimes	X	Yes, definitely	Always	Sometimes
<b>Person 3</b>	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 five 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
<b>Average Score</b>	<b>3</b>	<b>3</b>	<b>2.5</b>	<b>3</b>			<b>1.833</b>

\*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 =  $(1+1+1+2+1)/5 = 1.2$
- Conversion to 0-100 scale:  
 $Y = (2.667-1.2)/(4-1.2)*100 = 52.39$