

HHCAHPS Case Mix Adjustment Modeling Specifications

Case Mix Adjustment Model

$$y' = y + a1(h1-m1) + a2(h2-m2) + \dots + an(hn-mn)$$

where

y' is the patient mix and mode-adjusted Home Health Care CAHPS score for a given rating

y is the mode-adjusted HHA mean of an Home Health Care CAHPS rating

$a1$ – a_n are the individual-level patient mix adjustments, which are the oppositely signed from the regression coefficients

$h1$ – h_n are the proportions of patients, in the particular HHA, who have the characteristics on the respective patient mix adjustment variable.

$m1$ – m_n are the HHA-level means of patient mix variables from the mode experiment HHAs (e.g., the average HHA in the mode experiment). This mean corresponds to the mean of all HHAs on the respective patient mix variables in the National Implementation.

Case Mix Factors Tested

Proxy status: Had a proxy complete survey
Non English language: Non English survey
Age: Age 18–49
Age: Age 50–64
Age: Age 65–74 (reference group)
Age: Age 75–84
Age: Age 85 plus
Education: Less than 8th grade
Education: Some high school
Education: High school graduate or GED (reference group)
Education: Some college
Education: College graduate or more
Mental/emotional status: Excellent
Mental/emotional status: Very Good
Mental/emotional status: Good (reference group)
Mental/emotional status: Fair
Mental/emotional status: Poor
Patient lived alone: Yes—lived alone
Response mode: Web mode
Response mode: Mail (reference group)
Response mode: Telephone mode
Response mode: Mixed mode
ADL Deficits: Count of number of deficits
Gender: Male
Self-reported health: Excellent
Self-reported health: Very Good
Self-reported health: Good (reference group)
Self-reported health: Fair
Self-reported health: Poor
Admission source: Institutional admission
Admission source: Community (reference group)
Payer status: Any Medicaid
Payer status: Medicare without Medicaid (reference group)
Diagnoses: Diabetes with complications
Diagnoses: Morbid obesity
Diagnoses: Inflammatory bowel disease
Diagnoses: Bone, joint, muscle infections/necrosis
Diagnoses: Rheumatoid and tissues
Diagnoses: Schizophrenia
Diagnoses: Major depression, bipolar, paranoid
Diagnoses: Seizure disorders and convulsions
Diagnoses: Congestive heart failure
Diagnoses: Artificial openings
Diagnoses: Vascular disease with complications
Diagnoses: Serious lung disease

Diagnoses: Kidney failure
Diagnoses: Serious pressure ulcer
Diagnoses: Diabetes with complications
Diagnoses: Severe liver disease
Diagnoses: Dementia
Diagnoses: Severe movement and balance diseases
Diagnoses: Severe respiratory disease
Diagnoses: Acute heart disease
Diagnoses: Cancer
Diagnoses: Paralysis and stroke

Final Case Mix Factors Coefficients

Case Mix Factor	Factor Value	Factor Coefficient
Survey Mode	Telephone	−0.023
Survey Mode	Mix Mode	−0.015
Survey Mode	Web Mode	−0.017
Proxy status	Had a proxy complete survey	0.026
Non English language	Non-English survey language	0.013
Age	18-49	−0.004
Age	50-64	−0.016
Age	65-74 (reference group)	—
Age	75-84	−0.020
Age	85+	−0.020
Education	Less than 8th grade	−0.014
Education	Some high school	0.004
Education	High-school graduate or GED (reference group)	—
Education	Some college	−0.013
Education	College graduate or more	−0.020
Self-reported health	Excellent	0.053
Self-reported health	Very Good	0.002
Self-reported health	Good (reference group)	—
Self-reported health	Fair	−0.020
Self-reported health	Poor	−0.049
Mental/emotional status	Excellent	0.07
Mental/emotional status	Very Good	0.026
Mental/emotional status	Good (reference group)	—
Mental/emotional status	Fair	0.004
Mental/emotional status	Poor	−0.053
Patient lives alone	Yes-lives alone	−0.040