eAppendix A. MC and MCB activation and functions

To activate a MC account, patients are provided information during or after their visit on how to activate and use the outpatient portal. Activation can be completed during a patient’s office visit, after their visit via a link e-mailed to the patient, or can be completed by the patient themselves by providing demographic information that links them to a medical record number in the AMC system. For hospitalized patients, patients who were over age 13, English speaking, not incarcerated, and physically and cognitively capable of managing the technology were eligible to receive an Android tablet equipped with the MCB application. After a patient agreed to use the tablet during their hospital stay, a care team member initialized the tablet to activate the patient’s MCB account.

MC includes six functions: 1) Messaging (send/receive messages to/from health care providers, request prescription refills, complete an e-visit); 2) Visits (view past and upcoming visits, complete e-check in for upcoming appointments, schedule appointments online with current or new providers, and schedule after hours care or let emergency department know you are on your way); 3) My Record (view medical history, test results, summaries of care); 4) Medical Tools (view symptom checker, share medical records with other providers, participate in research studies); 5) Resources (view patient education, frequently asked questions, grant proxy access); and 6) Billing (pay your bill online or get an estimate of the cost for a procedure).

MCB includes 13 functions: 1) Tutorial (view video about how to use MCB); 2) Happening Soon (view anticipated schedule of medications and procedures); 3) To Learn (view patient education materials); 4) Taking Care of Me (view description and pictures of care team members); 5) Messages (send/receive messages to/from care team members); 6) My Health (view laboratory results and vitals); 7) Order My Meal (order food); 8) I Would Like (send requests); 9) Notes (make personal notes and view progress notes shared by the physician); 10) MyChart (create or access a MC account); 11) Home Screen (view a list of current problems and medications with links to educational content); 12) Questionnaires (view answers related to demographics, symptoms, and more); and 13) Sign Forms (sign consent forms electronically).
eAppendix B. CG-CAHPS and HCAHPS Survey Questions Attributed to Relevant Patient Satisfaction Measures

Note: Top-box responses are bold and underlined. Slight modifications have been made to some questions in this survey in order to fit with AMC goals and targets for care delivery.

CG-CAHPS Survey Questions Attributed to Relevant Patient Satisfaction Measures

Doctor Communication

During your most recent visit, did this provider explain things in a way that was easy to understand? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, did this provider give you easy to understand instructions about taking care of these health problems or concerns? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, did this provider listen carefully to you? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, did this provider seem to know the important information about your medical history? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, did this provider show respect for what you had to say? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, did this provider spend enough time with you? [Scale: **Yes, definitely**; Yes, somewhat; No]

Access to Care

During this visit, did you see this provider within 15 minutes of your appointment time? [Scale: **Yes, No**]

In the last 3 months, when you phoned this provider's office after regular office hours, how often did you get an answer to your medical question as soon as you needed? [Scale: Never, Sometimes, Usually, **Always**]

In the last 3 months, when you phoned this provider's office during regular office hours, how often did you get an answer to your medical question that same day? [Scale: Never, Sometimes, Usually, **Always**]

When you made this appointment for a check-up or routine care, did you get this appointment as soon as you thought you needed? [Scale: Never, Sometimes, Usually, **Always**]
When you made this appointment for care you needed right away, did you get this appointment as soon as you thought you needed? [Scale: Never, Sometimes, Usually, **Always**]

**Office Staff**

During your most recent visit, did clerks and receptionists at this provider's office treat you with courtesy and respect? [Scale: **Yes, definitely**; Yes, somewhat; No]

During your most recent visit, were clerks and receptionists at this provider's office as helpful as you thought they should be? [Scale: **Yes, definitely**; Yes, somewhat; No]

**Care Coordination**

During this visit, did this provider have your medical records? [Scale: **Yes**; No]

In the last 3 months, how often did you and anyone on your health care team talk about all the prescription medicines you were taking? [Scale: Never, Sometimes, Usually, **Always**]

In the last 3 months, when this provider ordered a blood test, x-ray, or other test for you, how often did someone from this provider's office follow-up to give you the results? [Scale: Never, Sometimes, Usually, **Always**]

**Provider Rating**

Using any number from 0 to 10, where 0 is the worst provider possible and 10 is the best provider possible, what number would you use to rate this provider? [Scale: 0 (Worst provider possible), 1, 2, 3, 4, 5, 6, 7, 8, **9, 10** (Best provider possible)]

**Recommend**

Would you recommend this provider's office to your family and friends? [Scale: **Yes, definitely**; Yes, somewhat; No]

**HCAHPS Survey Questions Attributed to Relevant Patient Satisfaction Measures**

**Nurse Communication**

During this hospital stay, how often did nurses explain things in a way you could understand? [Scale: Never, Sometimes, Usually, **Always**]
During this hospital stay, how often did nurses listen carefully to you? [Scale: Never, Sometimes, Usually, **Always**]

During this hospital stay, how often did nurses treat you with courtesy and respect? [Scale: Never, Sometimes, Usually, **Always**]

**Doctor Communication**

During this hospital stay, how often did doctors explain things in a way you could understand? [Scale: Never, Sometimes, Usually, **Always**]

During this hospital stay, how often did doctors listen carefully to you? [Scale: Never, Sometimes, Usually, **Always**]

During this hospital stay, how often did doctors treat you with courtesy and respect? [Scale: Never, Sometimes, Usually, **Always**]

**Care Transition**

During this hospital stay, staff took my preferences and those of my family or caregiver into account in deciding what my health care needs would be when I left. [Scale: Strongly disagree, Disagree, Agree, **Strongly Agree**]

When I left the hospital, I clearly understood the purpose for taking each of my medications. [Scale: Strongly disagree, Disagree, Agree, **Strongly Agree**, I was not given any medication when I left the hospital]

When I left the hospital, I had a good understanding of the things I was responsible for in managing my health. [Scale: Strongly disagree, Disagree, Agree, **Strongly Agree**]

**Communicating Medications**

Before giving you any new medicine, how often did hospital staff describe possible side effects in a way you could understand? [Scale: Never, Sometimes, Usually, **Always**]

Before giving you any new medicine, how often did hospital staff tell you what the medicine was for? [Scale: Never, Sometimes, Usually, **Always**]

**Responsiveness**

During this hospital stay, after you pressed the call button, how often did you get help as soon as you wanted it? [Scale: Never, Sometimes, Usually, **Always**, I never pressed the call button]
How often did you get help in getting to the bathroom or in using a bedpan as soon as you wanted? [Scale: Never, Sometimes, Usually, **Always**]  

**Discharge**

During your hospital stay, did hospital staff talk with you about whether you would have the help you needed when you left the hospital? [Scale: **Yes**, No]

During your hospital stay, did you get information in writing about what symptoms or health problems to look out for after you left the hospital? [Scale: **Yes**, No]

**Cleanliness**

During this hospital stay, how often were your room and bathroom kept clean? [Scale: Never, Sometimes, Usually, **Always**]

**Quietness**

During this hospital stay, how often was the area around your room quiet at night? [Scale: Never, Sometimes, Usually, **Always**]

**Hospital Rating**

Using any number from 0 to 10, where 0 is the worst hospital possible and 10 is the best hospital possible, what number would you use to rate this hospital? [Scale: 0 (Worst hospital possible), 1, 2, 3, 4, 5, 6, 7, 8, **9, 10** (Best hospital possible)]

**Recommend**

Would you recommend this hospital to your friends and family? [Scale: Definitely no, Probably no, Probably yes, **Definitely yes**]
eAppendix C. Analytic Approach

Fractional logistic regression can be used for the estimation of our dependent variables that have proportional values in the unit interval (i.e., \( y_j \in [0,1] \)) and can take the values of 0 or 1, which could result in a missing value in standard logistic regression. The log-likelihood function for the fractional logistic regression model is of the form:

\[
\ln L = \sum_{j=1}^{N} y_j \ln \left\{ G(x'j\beta) + (1 - y_j) \ln [1 - G(x'j\beta)] \right\}
\]

Where \( G(x'j\beta) \) follows the logit functional form:

\[
\exp(x'j\beta) / \{1 + \exp(x'j\beta)\}
\]

\( N \) is the sample size, \( y_j \) represents one of the CG-CAHPS or HCAHPS top-box proportion variables, \( \ln L \) is a quasi-maximum likelihood estimation function, and \( x'j \) is the vector containing the main predictor, the activated MC account or activated MCB status, and the demographic and clinical characteristic variables for each patient encounter \( j \).

The covariates for our empirical models were selected based on a literature review of other patient satisfaction studies that have used the CG-CAHPS and HCAHPS scores for similar analyses, and are also based on technical recommendations provided by national agencies involved in the development, administration, and use of the surveys. Generally, patient encounters with the characteristics we identified may be associated with systematic differences in patient satisfaction scores and activated MC/MCB status.

References


