Appendix.

Table A1. Facebook Characteristics of Hospitals in New York State with Facebook Page, 2015-2016 (N=77-95)

|  |  |
| --- | --- |
| **Variable** | **Mean±Standard Deviation, %** |
| Star Rating | 4.00±0.40 |
| Number of “Likes” | 7540.33±24610.71 |
| Number of Visits |  15161.86±17549.48  |
| Adjusted Number of “Likes” | 1643.93±5460.05 |
| Age of Facebook Page (in years) | 5.03±1.63 |
| Date Created |  |
|  Before July 1, 2010 | 35.79% |
|  On or After July 1, 2010 | 64.21% |

Table A2. Characteristics of Hospitals in New York State by Facebook Page, 2015-2016

|  |  |  |
| --- | --- | --- |
| **Variable** | **Facebook Page (N=95)** | **No Facebook Page (N=41)** |
| **HCAHPS Star Ratings** |  |  |
|  Overall Hospital Rating (1-5) | 2.23±1.16 | 1.95±0.75 |
|  Care Transition (1-5) | 2.27±1.04 | 2.15±0.80 |
|  Communication about Medicines (1-5) | 2.05±0.83 | 1.98±0.70 |
|  Pain Management (1-5) | 2.77±0.96 | 2.73±0.93 |
|  Recommend the Hospital (1-5) | 2.73±1.10 | 2.58±0.78 |
|  Discharge Information (1-5) | 2.66±1.05 | 2.60±1.13 |
|  Cleanliness of Hospital Environment (1-5) | 2.41±0.77 | 2.63±0.77 |
|  Responsiveness of Hospital Staff (1-5) | 2.24±1.07 | 2.18±0.90 |
|  Summary Star Rating (1-5) | 2.46±0.88 | 2.35±0.62 |
|  Communication with Doctors (1-5) | 2.39±0.89 | 2.15±0.58 |
|  Communication with Nurses (1-5) | 2.75±1.09 | 2.55±0.78 |
|  Quietness of Hospital Environment (1-5) | 1.75±0.79 | 1.65±0.77 |
| **HCAHPS % of Respondents** |  |  |
|  Definitely recommend the hospital | 65.85±11.26 | 63.73±6.88 |
|  Staff ALWAYS explained medications | 59.54±5.60 | 59.08±3.67 |
|  Area was ALWAYS quiet at night | 51.04±6.51 | 50.15±5.34 |
|  STRONGLY AGREE they understood care | 46.86±8.24 | 46.73±3.64 |
|  Room was ALWAYS clean | 67.68±5.98 | 68.48±6.14 |
|  Pain was ALWAYS well controlled | 66.48±5.45 | 66.08±5.06 |
|  Nurses ALWAYS communicated well | 74.81±6.27 | 74.40±4.04 |
|  Staff gave patient discharge information  | 84.22±4.85 | 83.75±4.48 |
|  Doctors ALWAYS communicated well | 77.19±4.09 | 76.25±2.60 |
|  ALWAYS received help as soon as they wanted | 59.63±9.36 | 59.53±6.05 |
|  Gave a Rating of 9 or 10 (High) | 63.41±10.29 | 61.70±6.09 |
| **Hospital Quality Variables** |  |  |
|  Hospital-Wide Readmission Rate | 16.71%±1.26% | 16.22%±1.13% |
|  Medicare Cost per Beneficiary per Episode | 0.99±0.06 | 0.97±0.08 |
| **Hospital Characteristics** |  |  |
| Number of Beds | 301.53±254.56 | 258.66±263.93 |
|  Urban | 96.84% | 82.93% |
|  Disproportionate Share | 14.74% | 14.63% |
|  Academic Medical Center | 64.21% | 60.98% |
|  Owner |  |  |
|  Non-Profit | 87.37% | 82.93% |
|  Government | 10.53% | 17.07% |
|  For-Profit | 2.11% | 0.00% |
| **Market Characteristics** |  |  |
|  Market Competition (1-HHI) | 0.89±0.13 | 0.85±0.18 |
|  Education | 35.11±11.10 | 29.76±9.65 |
|  Median Household Income | 63895.07±17421.41 | 58461.80±19046.68 |

Table A3. Correlations between Facebook User Ratings and HCAHPS Measures of Patient Satisfaction, 2015-2016

|  |  |  |
| --- | --- | --- |
|  | **Star Rating (1-5)** | **Adjusted Number of “Likes”** |
| **HCAHPS Star Ratings** |  |  |
|  Overall Hospital Rating (1-5) | 0.60\*\*\* | 0.19 |
|  Care Transition (1-5) | 0.49\*\*\* | 0.18 |
|  Communication about Medicines (1-5) | 0.44\*\*\* | 0.05 |
|  Pain Management (1-5) | 0.43\*\*\* | 0.16 |
|  Recommend the Hospital (1-5) | 0.71\*\*\* | 0.27\* |
|  Discharge Information (1-5) | 0.30\* | 0.08 |
|  Cleanliness of Hospital Environment (1-5) | 0.30\* | 0.10 |
|  Responsiveness of Hospital Staff (1-5) | 0.41\*\* | 0.14 |
|  Summary Star Rating (1-5) | 0.52\*\*\* | 0.16 |
|  Communication with Doctors (1-5) | 0.44\*\*\* | 0.17 |
|  Communication with Nurses (1-5) | 0.45\*\*\* | 0.11 |
|  Quietness of Hospital Environment (1-5) | 0.08 | 0.07 |
| **HCAHPS % of Respondents** |  |  |
|  Definitely recommend the hospital | 0.71\*\*\* | 0.23\* |
|  Staff ALWAYS explained medications | 0.50\*\*\* | 0.09 |
|  Area was ALWAYS quiet at night | -0.003 | 0.03 |
|  STRONGLY AGREE they understood care | 0.51\*\*\* | 0.12 |
|  Room was ALWAYS clean | 0.23\* | 0.04 |
|  Pain was ALWAYS well controlled | 0.47\*\*\* | 0.13 |
|  Nurses ALWAYS communicated well | 0.49\*\*\* | 0.11 |
|  Staff gave patient discharge information  | 0.33\*\* | 0.06 |
|  Doctors ALWAYS communicated well | 0.38\*\*\* | 0.18 |
|  ALWAYS received help as soon as they wanted | 0.46\*\*\* | 0.07 |
|  Gave a rating of 9 or 10 (high) | 0.60\*\*\* | 0.19 |
| \**P*≤0.05, \*\**P*≤0.005, \*\*\**P*≤0.001 |  |  |

Table A4. Association between Facebook User Ratings and HCAHPS Patient Satisfaction Scores in New York State Hospitals, 2015-2016

|  |  |  |  |
| --- | --- | --- | --- |
| **Dependent Variable** | **Independent Variable** | **Coefficient** | ***P*** |
| **HCAHPS Star Ratings** | Star Rating |  |  |
|  Overall Hospital Rating (1-5) | (N=74-75) | 1.63 | <0.001 |
|  Care Transition (1-5) |  | 1.42 | <0.001 |
|  Communication about Medicines (1-5) |  | 0.95 | <0.001 |
|  Pain Management (1-5) |  | 1.22 | <0.001 |
|  Recommend the Hospital (1-5) |  | 1.91 | <0.001 |
|  Discharge Information (1-5) |  | 1.14 | <0.001 |
|  Cleanliness of Hospital Environment (1-5) |  | 0.64 | 0.015 |
|  Responsiveness of Hospital Staff (1-5) |  | 1.24 | <0.001 |
|  Summary Star Rating (1-5) |  | 1.30 | <0.001 |
|  Communication with Doctors (1-5) |  | 1.07 | <0.001 |
|  Communication with Nurses (1-5) |  | 1.41 | <0.001 |
|  Quietness of Hospital Environment (1-5) |  | 0.33 | 0.190 |
| **HCAHPS % of Respondents** |  |  |  |
|  Definitely recommend the hospital |  | 19.62 | <0.001 |
|  Staff ALWAYS explained medications |  | 7.77 | <0.001 |
|  Area was ALWAYS quiet at night |  | 0.08 | 0.968 |
|  STRONGLY AGREE they understood care |  | 9.41 | <0.001 |
|  Room was ALWAYS clean |  | 4.84 | 0.013 |
|  Pain was ALWAYS well controlled |  | 6.74 | <0.001 |
|  Nurses ALWAYS communicated well |  | 7.79 | <0.001 |
|  Staff gave patient discharge information  |  | 5.17 | <0.001 |
|  Doctors ALWAYS communicated well |  | 3.94 | 0.001 |
|  ALWAYS received help as soon as they wanted |  | 11.00 | <0.001 |
|  Gave a rating of 9 or 10 (high) |  | 15.01 | <0.001 |
| **Hospital Quality Variables** |  |  |  |
| Hospital-Wide Readmission Rate |  | -1.19 | 0.003 |
| Medicare Spending per Beneficiary |  | -0.04 | 0.056 |
| **Dependent Variable** | **Independent Variable** | **Coefficient** | ***P*** |
| **HCAHPS Star Ratings** | Adjusted Number of “Likes” by 100 |  |  |
|  Overall Hospital Rating (1-5) | (N=91-93) | 0.003 | 0.181 |
|  Care Transition (1-5) |  | 0.003 | 0.153 |
|  Communication about Medicines (1-5) |  | 0.0005 | 0.746 |
|  Pain Management (1-5) |  | 0.006 | 0.004 |
|  Recommend the Hospital (1-5) |  | 0.004 | 0.087 |
|  Discharge Information (1-5) |  | 0.005 | 0.029 |
|  Cleanliness of Hospital Environment (1-5) |  | 0.002 | 0.217 |
|  Responsiveness of Hospital Staff (1-5) |  | 0.005 | 0.036 |
|  Summary Star Rating (1-5) |  | 0.003 | 0.094 |
|  Communication with Doctors (1-5) |  | 0.002 | 0.204 |
|  Communication with Nurses (1-5) |  | 0.004 | 0.117 |
|  Quietness of Hospital Environment (1-5) |  | 0.003 | 0.165 |
| **HCAHPS % of Respondents** |  |  |  |
|  Definitely recommend the hospital |  | 0.03 | 0.183 |
|  Staff ALWAYS explained medications |  | 0.009 | 0.439 |
|  Area was ALWAYS quiet at night |  | 0.003 | 0.825 |
|  STRONGLY AGREE they understood care |  | 0.02 | 0.200 |
|  Room was ALWAYS clean |  | 0.02 | 0.150 |
|  Pain was ALWAYS well controlled |  | 0.02 | 0.037 |
|  Nurses ALWAYS communicated well |  | 0.02 | 0.195 |
|  Staff gave patient discharge information  |  | 0.02 | 0.032 |
|  Doctors ALWAYS communicated well |  | 0.01 | 0.213 |
|  ALWAYS received help as soon as they wanted |  | 0.02 | 0.226 |
|  Gave a rating of 9 or 10 (high) |  | 0.04 | 0.104 |
| **Hospital Quality Variables** |  |  |  |
|  Hospital-Wide Readmission Rate |  | -0.005 | 0.077 |
|  Medicare Spending per Beneficiary |  | -0.0002 | 0.192 |
| Note: Models control for hospital characteristics (number of beds, DSH, academic medical center, ownership, urban/rural location), market characteristics (market competition, median household income, % of persons ≥25 years with a Bachelor’s degree), and age of Facebook page (pre/post July 1, 2010). |