# CAHPS® American Indian Survey Summary of Analyses of the Field Test September 25, 2006 <br> Beverly Weidmer, Patrik Johansson, Debbie Dalpoas, David Wharton, Charles Darby, and Ron D. Hays 

## Background

The CAHPS® American Indian Survey was developed as part of a collaborative effort between CAHPS $®$ and the Choctaw Nation Health Services (CNHS). The objectives of this study are to develop a survey to assess perceptions of care at CNHS clinics in the last 12 months, to compare patients' experiences across different CNHS clinics, to begin to establish a benchmark for patients' experiences with Choctaw Nation health care facilities, and to provide input into the development of a national American Indian Survey.

In February 2004, CAHPS team members from RAND and AHCPR met with CNHS staff at the CNHS clinic in Talihina for a project kick-off meeting. The purpose of this meeting was to obtain information from CNHS about how a CAHPS-like survey would be useful for them; to identify and prioritize concrete objectives for the study, to get background information on how the CNHS are organized and how care is delivered through the outpatient clinics, and to obtain information about CNHS experience in conducting patient surveys. After the visit, CNHS provided the CAHPS team with copies of patient surveys they had utilized in the past, while the CAHPS team provided CNHS staff with a preliminary list of measures pulled from the Clinician and Group Survey. Through an iterative review process, CAHPS and CNHS worked to identify domains of interest and specific measures that CNHS was interested in including in the survey. RAND CAHPS team members took the lead in developing a draft survey. When necessary and appropriate, measures were adapted to reflect how health services are organized by CNHS. With input from CNHS staff, measures were also reworded to include terms or phrases familiar to the CNHS patient population.

The draft instrument was based largely on the CAHPS Clinician and Group Survey, and included 19 domains and 65 items including items on:

- Getting Care Quickly
- After Hours Care
- Wait Time
- Getting Needed Care
- Provider Communication
- Communication About Prescription Medications
- Communication About Symptoms
- Communication About Test Results
- Overall Rating of Primary Provider
- Coordination of Care Among Providers
- Shared Decision Making
- Office Staff Courtesy
- Prescriptions
- Information
- Health Education
- Overall Rating of Clinic
- Discrimination
- Background information


## Cognitive Testing

In the summer of 2004, RAND CAHPS team members conducted 20 in-person cognitive interviews with subjects recruited from 3 CNHS outpatient clinics. The cognitive testing plan was reviewed and approved by the CNHS IRB and by the tribal council and chief. Patient recruitment was conducted by CNHS staff, however, respondents were interviewed in person by RAND researchers through a process that involved asking respondents to complete the survey themselves and using scripted probes to assess their understanding of draft survey items, to assess their understanding of key concepts, and to identify terms, items or response options that
were problematic. With few exceptions, the cognitive interviews demonstrated that the survey generally covers issues that are relevant to CNHS patient population. Respondents generally had little difficulty in understanding survey items, however, some items required modification to reflect how services are structured in specific clinics. In addition, the survey was modified to provide CNHS with clinic-specific information.

## Field Test

In June-August 2005, the RAND CAHPS team conducted a field test of the revised survey instrument. The field test data collection and analysis plan was reviewed and approved by the CNHS IRB and by the tribal council and chief. The field test was designed to evaluate the psychometric properties of the survey instrument. The survey included 81 questions assessing a variety of aspects of care and background information (health, having a chronic condition, age, gender, educational attainment, race, and language spoken at home). The sample file for the field test was drawn by CNHS according to specifications agreed upon by RAND, AHRQ, and CHNS. A total of 1200 adult respondents were randomly selected from among patients treated at 5 CNHS outpatient clinics. In order to be eligible for the field test, a subject had to be 18 years old or older, and had to have had an outpatient visit at one of the 5 selected CNHS clinics in the previous 18-month period. Two hundred and forty subjects were randomly selected from each of the clinics. Approximately half were men and half were women.

Due to budget constraints, the survey was field tested as a mail survey only. Respondents were mailed an advance notification letter signed by Chief Pyle. Approximately one week after the advance notification letter was mailed, the survey was mailed with a cover letter from RAND. Two weeks after mailing the survey, respondents received a reminder letter asking them to complete and return the survey. Two weeks after the mailing of the reminder letter, non-respondents were mailed a second copy of the survey with another reminder letter. Respondents who completed and returned the survey were mailed a thank you letter with a $\$ 10$ Wal-Mart gift card.

Analyses were conducted to examine survey response rates, item missing data, and reliability and validity of responses. Overall, the findings are very encouraging for the quality of the data collected.

## Results

We obtained a total of 696 returned surveys ( 1 partial), for a raw response rate of $58 \%$. Respondents to the survey reported that the clinic they visited most often in the last 12 months to get care for themselves was Talihina ( $\mathrm{n}=202$ ), Hugo ( $\mathrm{n}=125$ ), Poteau ( $\mathrm{n}=$ 124), Broken Bow ( $\mathrm{n}=109$ ), McAlester ( $\mathrm{n}=99$ ), and another clinic ( $\mathrm{n}=14$ ).

Item missing data rates tended to be low, with the question having the largest amount of missing data (8\%) being the global rating of the primary doctor or nurse (question 29). Most items had missing data rates of $1 \%$ or less.

It is generally a good idea to use multiple questions or items to measure each dimension of health care one is interested in evaluating. We initially hypothesized 7 multi-item scales in the survey instrument: getting care quickly ( 5 items), getting needed care ( 5 items), communication with providers ( 9 items), shared decision making ( 2 items), courtesy/respect and helpfulness of clerks and receptionists ( 2 items), health education ( 6 items), and perceived discrimination ( 6 items). We also included a single question on coordination of care (Q17). Item-scale correlations for 6 of the 7 scales are given in Table 1 below. (One of the multi-item scales, shared decision making, is not included because only 247 people reported having more than one choice for their treatment of health care and were eligible to answer the two shared decision making questions. The alpha reliability estimate for this two-item shared decision-making scale was 0.63 ).

The biggest problem identified was the fact that the discrimination items did not coalesce into a homogenous scale (item-scale correlations tended to be low). ${ }^{1}$ Therefore, we looked at the correlations among the discrimination items to see if any correlated highly with one another. We found two items that correlated highly (Q59, Q60). Hence, we estimated a second item-scale correlation matrix using these two items as a discrimination scale. In addition, we removed Q20 from the health education scale because it correlated only 0.30 with that scale and correlated more highly $(r=0.45)$ with the communication scale. We put the 4 discrimination items and 1 health education item that didn't correlate with their hypothesized scales into a miscellaneous (junk) scale.

The revised item-scale correlation matrix is provided as Table 2. This matrix shows that Q7 correlated as highly with the getting needed care scale as it did with getting care quickly. Q36 correlated as highly with getting care quickly and communication as it did with its hypothesized getting needed care scale. Aside from these anomalies, the items tended to correlate most highly with the scale they were intended to represent.

The internal consistency reliability estimates for the scales are given in Table 3. Alpha reliability estimates range from 0-1 and 0.70 or above is considered acceptable for group comparisons. The reliability estimates in this sample tended to be in the range of acceptable

[^0]magnitude, with alphas ranging from 0.66 (getting needed care) to 0.92 (clerks and receptionists). As show in Table 4, intercorrelations among scales ranged from 0.07 (health education with discrimination) to 0.54 (communication with getting needed care), indicating that the scales were related to one another but not redundant (the square of the correlations indicates the amount of variance that is shared between scales). Table 5 provides descriptive statistics for the scales and global items in the overall sample.

Correlations between the global rating items and the scales are provided in Table 6. The communication scale had the largest correlations with both the global rating of the primary provider $(r=0.75)$ and with the rating of the primary clinic $(r=0.64)$. Coordination of care had the second largest correlation with the global rating of primary provider ( $\mathrm{r}=0.65$ ) while the courtesy/respect and helpfulness of clerks and receptionists scale had the second largest correlation with the global rating of the primary clinic $(\mathrm{r}=0.63)$.

Table 7 provides similar information by clinic (we coded people into one of 6 clinics based on their responses to questions 1 and 2 in the survey). If there are differences in the care delivered between clinics then the scales should pick up these differences. Whether perceptions of care differ by clinic is assesses using one-way ANOVA. If the F-statistic for between clinics differs significantly ( $\mathrm{p}<$ 0.05 ) that means perceptions varied by people receiving care in different clinics. The F-statistics for clinics comparisons were significant for 3 of 9 measures (scales or items) we examined: 1) getting care quickly ( $\mathrm{F}=4.54, \mathrm{p}=0.0004$ ); 2) getting needed care ( F $=1.49, \mathrm{p}=0.1903$ ); 3) communication ( $\mathrm{F}=1.46, \mathrm{p}=0.2024$ ); 4) clerks and receptionists $(\mathrm{F}=5.43, \mathrm{p}<0.0001)$; 5) health education $(\mathrm{F}=$ $1.33, \mathrm{p}=.2496$ ); 6) discrimination ( $\mathrm{F}=1.01, \mathrm{p}=0.4080$ ); 7) shared decision making ( $\mathrm{F}=0.97, \mathrm{p}=.4363$ ); 8) global rating of primary provider $(\mathrm{F}=2.04, \mathrm{p}=0.0708)$, and 9 ) global rating of clinic $(\mathrm{F}=6.62, \mathrm{p}<.0001)$. Clinic 3 tended to score higher than the other clinics.

Multivariate models that look at the unique associations of clinic with perceptions of care controlling for age, educational attainment, gender, and chronic conditions are provided in Table 8.

## Conclusions

The study provided preliminary information about experiences of care at the CNHS and opportunities for improvement. Overall, the findings from the field test are very encouraging for the quality of the data collected with the CAHPS American Indian Survey. We obtained a raw response rate of $58 \%$, a respectable response rate for a mail survey. Item missing data rates tended to be low, with most items with missing data rates of $1 \%$ or less. Analyses conducted to examine reliability and validity of responses indicate the reliability estimates in this sample tended to be in the range of acceptable magnitude, with alphas ranging from 0.66 (getting needed
care) to 0.92 (clerks and receptionists). Intercorrelations among scales ranged from 0.07 (health education with discrimination) to 0.54 (communication with getting needed care), indicating that the scales were related to one another but not redundant.

The Tribal/Federal/Private partnership between CNHS, AHRQ, and the RAND Corporation represents a successful model for collaboration and community based participatory research with an American Indian Tribe. The CAHPS American Indian Survey is a useful tool in assessing perceptions of care at the clinic level and in comparing patients' experiences across different clinics.

Table 1: Item-Scale Correlations for Initial Hypothesized Scales ( $\mathrm{n}=446$ )

| item | quick | care | comm | clerk | heduc | discrim |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| q4 | 0.53* | 0.42 | 0.34 | 0.33 | 0.12 | 0.24 |
| r_q5 | $0.38 *$ | 0.29 | 0.18 | 0.28 | 0.05 | 0.15 |
| q7 | 0.52* | 0.54 | 0.47 | 0.43 | 0.21 | 0.24 |
| q10 | $0.55 *$ | 0.33 | 0.32 | 0.38 | 0.21 | 0.10 |
| r_q11 | $0.44 *$ | 0.31 | 0.37 | 0.33 | 0.30 | 0.08 |
| q9 | 0.23 | 0.32* | 0.29 | 0.20 | 0.13 | 0.21 |
| q31 | 0.34 | 0.43* | 0.31 | 0.27 | 0.16 | 0.18 |
| q36 | 0.45 | $0.45 *$ | 0.48 | 0.38 | 0.28 | 0.20 |
| r_q55 | 0.35 | $0.44 *$ | 0.33 | 0.38 | 0.12 | 0.22 |
| q56 | 0.36 | 0.51* | 0.37 | 0.41 | 0.13 | 0.39 |
| r_q21 | 0.17 | 0.16 | 0.36* | 0.16 | 0.43 | 0.14 |
| q37 | 0.42 | 0.47 | 0.79* | 0.43 | 0.42 | 0.29 |
| q38 | 0.45 | 0.50 | 0.81* | 0.45 | 0.38 | 0.34 |
| q39 | 0.44 | 0.51 | $0.81 *$ | 0.44 | 0.39 | 0.30 |
| q40 | 0.45 | 0.51 | 0.79* | 0.46 | 0.41 | 0.32 |
| q42 | 0.38 | 0.43 | 0.63* | 0.31 | 0.32 | 0.25 |
| q44 | 0.38 | 0.45 | 0.69* | 0.39 | 0.38 | 0.23 |
| q46 | 0.35 | 0.40 | 0.60* | 0.40 | 0.29 | 0.23 |
| q47 | 0.31 | 0.41 | 0.69* | 0.38 | 0.32 | 0.26 |
| q52 | 0.50 | 0.50 | 0.49 | 0.86* | 0.22 | 0.29 |
| q53 | 0.47 | 0.47 | 0.45 | 0.86* | 0.21 | 0.30 |
| r_q20 | 0.18 | 0.24 | 0.45 | 0.18 | 0.30* | 0.15 |
| r_q22 | 0.25 | 0.20 | 0.44 | 0.20 | 0.55* | 0.13 |
| r_q23 | 0.19 | 0.15 | 0.40 | 0.16 | 0.57* | 0.05 |
| r_q26 | 0.17 | 0.14 | 0.22 | 0.15 | 0.40* | 0.03 |
| r_q27 | 0.08 | 0.11 | 0.17 | 0.09 | 0.39* | 0.01 |
| r_q28 | 0.09 | 0.11 | 0.18 | 0.06 | 0.40* | -. 02 |
| q58 | 0.20 | 0.34 | 0.33 | 0.33 | 0.06 | 0.02* |
| q59 | 0.09 | 0.10 | 0.10 | 0.09 | 0.04 | 0.28* |
| r_q60 | 0.10 | 0.13 | 0.09 | 0.13 | 0.10 | 0.29* |
| q61 | 0.09 | 0.02 | 0.12 | -. 03 | 0.05 | -.06* |
| q62 | -. 04 | 0.05 | 0.08 | -. 05 | 0.04 | $0.06 *$ |
| q63 | 0.05 | 0.12 | 0.01 | 0.12 | -. 03 | 0.05* |

Table 2: Item-Scale Correlations for Revised Scales ( $\mathrm{n}=444$, $\mathrm{SE}=0.05$ )

| item | quick | care | comm | clerk | heduc | discrim | misc |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| q4 | $0.53 *$ | 0.43 | 0.34 | 0.33 | 0.10 | 0.23 | 0.23 |
| r_q5 | 0.39* | 0.30 | 0.19 | 0.28 | 0.05 | 0.14 | 0.11 |
| q7 | 0.52* | 0.54 | 0.47 | 0.43 | 0.20 | 0.24 | 0.24 |
| q10 | $0.55 *$ | 0.32 | 0.31 | 0.38 | 0.19 | 0.10 | 0.16 |
| r_q11 | $0.44 *$ | 0.31 | 0.36 | 0.33 | 0.30 | 0.08 | 0.16 |
| q9 | 0.23 | 0.33* | 0.29 | 0.20 | 0.12 | 0.19 | 0.18 |
| q31 | 0.34 | 0.43 * | 0.31 | 0.27 | 0.14 | 0.16 | 0.24 |
| q36 | 0.45 | 0.45 * | 0.48 | 0.38 | 0.25 | 0.16 | 0.36 |
| r_q55 | 0.35 | $0.44 *$ | 0.33 | 0.38 | 0.10 | 0.21 | 0.26 |
| q56 | 0.36 | 0.51* | 0.37 | 0.41 | 0.12 | 0.36 | 0.35 |
| r_q21 | 0.17 | 0.16 | $0.36 *$ | 0.16 | 0.41 | 0.12 | 0.23 |
| q37 | 0.42 | 0.47 | $0.78 *$ | 0.43 | 0.37 | 0.25 | 0.47 |
| q38 | 0.45 | 0.50 | 0.81* | 0.45 | 0.33 | 0.30 | 0.51 |
| q39 | 0.44 | 0.51 | 0.81* | 0.44 | 0.33 | 0.26 | 0.52 |
| q40 | 0.45 | 0.51 | 0.79* | 0.46 | 0.37 | 0.28 | 0.47 |
| q42 | 0.38 | 0.43 | 0.63* | 0.31 | 0.28 | 0.19 | 0.38 |
| q44 | 0.38 | 0.45 | 0.69* | 0.38 | 0.35 | 0.20 | 0.35 |
| q46 | 0.35 | 0.40 | 0.60* | 0.40 | 0.26 | 0.22 | 0.33 |
| q47 | 0.31 | 0.41 | 0.69* | 0.38 | 0.29 | 0.24 | 0.36 |
| q52 | 0.50 | 0.50 | 0.49 | 0.86 * | 0.21 | 0.28 | 0.34 |
| q53 | 0.47 | 0.47 | 0.45 | 0.86* | 0.19 | 0.30 | 0.32 |
| r_q22 | 0.25 | 0.20 | 0.44 | 0.20 | 0.52 * | 0.12 | 0.23 |
| r_q23 | 0.19 | 0.15 | 0.40 | 0.16 | $0.54 *$ | 0.05 | 0.17 |
| r_q26 | 0.17 | 0.14 | 0.22 | 0.15 | 0.41* | 0.04 | 0.07 |
| r_q27 | 0.08 | 0.11 | 0.17 | 0.09 | 0.41* | 0.01 | 0.04 |
| r_q28 | 0.09 | 0.11 | 0.18 | 0.06 | 0.42* | -. 02 | -. 00 |
| q59 | 0.19 | 0.27 | 0.27 | 0.26 | 0.05 | 0.72 * | 0.52 |
| r_q60 | 0.20 | 0.31 | 0.28 | 0.30 | 0.09 | 0.72 * | 0.59 |
| r_q20 | 0.18 | 0.24 | 0.45 | 0.18 | 0.30 | 0.15 | 0.15* |
| q58 | 0.20 | 0.35 | 0.34 | 0.33 | 0.04 | 0.64 | 0.10 * |
| q61 | 0.08 | 0.02 | 0.11 | -. 03 | 0.03 | -. 03 | 0.03* |
| q62 | -. 04 | 0.08 | 0.10 | -. 04 | 0.05 | 0.09 | -.03* |
| q63 | 0.05 | 0.12 | 0.01 | 0.11 | -. 02 | 0.12 | -.08* |



Table 4: Intercorrelations among Scales

| Pearson Correlation Coefficients Prob > $\|r\|$ under H0: Rho=0 Number of Observations |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | quick5 | care5 | comm9 | clerk2 |
| ```quick5 access: getting care quickly``` |  | 1.00000 | 0.46944 | 0.46740 | 0.44724 |
|  |  |  | <. 0001 | <. 0001 | <. 0001 |
|  |  | 695 | 667 | 693 | 693 |
| care5 |  | 0.46944 | 1.00000 | 0.51136 | 0.46835 |
| access: getting needed care |  | <. 0001 |  | $<.0001$ | <. 0001 |
|  |  | 667 | 667 | 667 | 667 |
| comm9 |  | 0.46740 | 0.51136 | 1.00000 | 0.50625 |
| communication |  | $<.0001$ | $<.0001$ |  | <. 0001 |
|  |  | 693 | 667 | 693 | 692 |
| clerk2 |  | 0.44724 | 0.46835 | 0.50625 | 1.00000 |
| clerks and receptionists at your clinic |  | $<.0001$ | <. 0001 | <. 0001 |  |
|  |  | 693 | 667 | 692 | 693 |
| heduc5 |  | 0.25082 | 0.21860 | 0.46374 | 0.18770 |
| health education |  | <. 0001 | <. 0001 | <. 0001 | <. 0001 |
|  |  | 464 | 454 | 464 | 464 |
| discrim2 |  | 0.20584 | 0.10998 | 0.22545 | 0.24458 |
| discrimination |  | 0.0670 | 0.3315 | 0.0444 | 0.0288 |
|  |  | 80 | 80 | 80 | 80 |
| decis2 |  | 0.42127 | 0.44266 | 0.56977 | 0.34611 |
| shared decision making |  | <. 0001 | <. 0001 | <. 0001 | <. 0001 |
|  |  | 245 | 244 | 245 | 245 |
| ccare |  | 0.43224 | 0.45224 | 0.65655 | 0.42040 |
| Coordination of care - PRIMARY DR INFORMED | AND UP-TO-DATE (q17) | <. 0001 | <. 0001 | <. 0001 | <. 0001 |
|  |  | 186 | 186 | 186 | 186 |

## Table 4: Intercorrelations among Scales (continued)



## Table 5: Descriptive Statistics on Scales and Global Rating Items for Sample

| Variable | Label |  |  |  | N | Mean | Std Dev | Minimum | Maximum |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| quick5 | access: getting care quickly |  |  |  | 695 | 57.34 | 23.84 | 0.00 | 100.00 |
| comm9 | communication |  |  |  | 693 | 75.10 | 24.08 | 0.00 | 100.00 |
| clerk2 | clerks and receptionists at your clinic |  |  |  | 693 | 76.15 | 27.07 | 0.00 | 100.00 |
| heduc5 | health education |  |  |  | 464 | 57.94 | 41.72 | 0.00 | 100.00 |
| discrim2 | discrimination |  |  |  | 80 | 66.56 | 37.93 | 0.00 | 100.00 |
| decis2 | shared decision making |  |  |  | 245 | 82.79 | 21.17 | 0.00 | 100.00 |
| rate_md | rating of primary provider (q29) |  |  |  | 635 | 76.24 | 24.96 | 0.00 | 100.00 |
| rate_cl | rating of primary clinic (q57) |  |  |  | 693 | 77.22 | 24.31 | 0.00 | 100.00 |
| ccare | Coordination of care - PRIMARY DR INFORMED | AND | UP-TO-DATE | (q17) | 186 | 69.68 | 32.16 | 0.00 | 100.00 |

## Table 6: Pairwise correlation between scales and global rating items

|  | Pearson Correlation Coefficients Prob > $\|r\|$ under H0: Rho=0 Number of Observations |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | quick5 | care5 | comm9 | clerk2 | heduc5 | discrim2 | decis2 | ccare |
| rate_md | 0.46928 | 0.44657 | 0.74992 | 0.40459 | 0.43098 | 0.00307 | 0.43140 | 0.65039 |
| rating of primary provider (q29) | <. 0001 | <. 0001 | <.0001 | <. 0001 | <. 0001 | 0.9793 | <. 0001 | <. 0001 |
|  | 635 | 612 | 635 | 635 | 462 | 74 | 228 | 185 |
| rate_cl | 0.53659 | 0.53876 | 0.64040 | 0.62968 | 0.32098 | 0.22765 | 0.44599 | 0.54427 |
| rating of primary clinic (q57) | <. 0001 | <. 0001 | <. 0001 | <. 0001 | <. 0001 | 0.0423 | <. 0001 | <. 0001 |
|  | 693 | 665 | 691 | 691 | 464 | 80 | 245 | 186 |

Table 7: Means by Clinic ( $n /$ Mean/Standard deviation)

|  | n | clinic 1 $(n=114)$ | SD | n | clinic 2 $(\mathrm{n}=215)$ | SD | n | clinic 3 $(\mathrm{n}=127)$ | SD | n | clinic 4 $(\mathrm{n}=127)$ | SD | n | clinic 5 $(\mathrm{n}=104)$ | SD | n | clinic 6 $(\mathrm{n}=8)$ | SD |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| quick5 | 114 | 55.31 | 23.76 | 215 | 56.10 | 25.97 | 127 | 65.67 | 21.23 | 127 | 52.61 | 21.28 | 104 | 57.97 | 22.27 | 8 | 53.88 | 35.10 |
| care5 | 104 | 73.75 | 24.91 | 210 | 75.45 | 22.79 | 124 | 81.16 | 22.94 | 124 | 77.03 | 21.58 | 98 | 75.32 | 22.14 | 7 | 74.29 | 29.98 |
| comm9 | 114 | 71.30 | 24.61 | 215 | 76.27 | 24.42 | 127 | 78.79 | 21.08 | 126 | 73.13 | 25.76 | 104 | 74.60 | 23.93 | 7 | 76.78 | 22.33 |
| clerk2 | 114 | 66.14 | 30.84 | 215 | 76.23 | 26.07 | 126 | 83.41 | 21.99 | 127 | 76.22 | 26.90 | 104 | 78.65 | 26.84 | 7 | 67.14 | 38.61 |
| heduc5 | 79 | 58.61 | 41.93 | 140 | 60.57 | 40.92 | 99 | 62.22 | 38.93 | 93 | 51.67 | 44.18 | 47 | 50.00 | 45.01 | 6 | 76.67 | 25.82 |
| discrim2 | 11 | 61.36 | 42.37 | 30 | 65.83 | 40.20 | 12 | 85.42 | 19.82 | 16 | 57.81 | 36.19 | 11 | 65.91 | 43.69 | 0 | ------ | ---- |
| decis2 | 31 | 87.10 | 18.11 | 90 | 81.48 | 22.41 | 48 | 78.82 | 24.00 | 37 | 84.23 | 21.14 | 36 | 85.19 | 16.32 | 3 | 94.44 | 9.62 |
| rate_md | 107 | 74.86 | 23.49 | 191 | 77.43 | 25.53 | 119 | 81.09 | 21.18 | 125 | 74.08 | 27.30 | 87 | 71.26 | 26.23 | 6 | 83.33 | 19.66 |
| rate_cl | 113 | 69.91 | 25.89 | 214 | 79.02 | 23.43 | 127 | 85.98 | 16.87 | 127 | 74.65 | 26.66 | 104 | 74.62 | 24.65 | 8 | 67.50 | 38.08 |
| ccare | 21 | 71.43 | 33.81 | 70 | 69.43 | 34.34 | 34 | 69.41 | 32.00 | 35 | 71.43 | 30.40 | 23 | 67.83 | 30.59 | 3 | 60.00 | 20.00 |

Summary of overall $F$ and Duncan multiple range tests:
quick5: $F(5,689)=4.54(p=.0004)$ - clinic4<clinic3
care5: $F(5,661)=1.49 \quad(p=.1903)$
comm9: $F(5,687)=1.46 \quad(p=.2024)$
clerk2: $F(5,687)=5.43(p<.0001)$ - clinic1,clinic6<clinic3
heduc5: $\mathrm{F}(5,458)=1.33 \mathrm{p}=.2496$ - not significant, but Duncan indicates clinic5<clinic6
discrim2: $F(4,75)=1.01 \quad(p=.4080)$
decis2: $F(5,239)=0.97 \quad(p=.4363)$
rate_md: $F(5,629)=2.04 \quad(p=.0708)$
rate_cl: $F(5,687)=6.62(p<.0001)$ - clinic6,clinic1<clinic3
ccare: $F(5,180)=0.10 \quad(p=.9917)$

Table 8: Regressions of Patient Evaluations of Care (Standardized estimates and p-values)

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Quick5 | p-level | Care5 | p-level | Comm9 | p-level | Clerk2 | p-level | Heduc5 | p-level | Discrim2 | p-level |
| clinic1 | 0.01 | 0.8104 | -0.03 | 0.4906 | -0.13 | 0.0124 | -0.18 | 0.0002 | 0.00 | 0.9723 | 0.03 | 0.8404 |
| clinic3 | 0.16 | 0.0017 | 0.11 | 0.0276 | 0.03 | 0.5213 | 0.10 | 0.0315 | 0.04 | 0.4552 | 0.22 | 0.1834 |
| clinic4 | -0.04 | 0.4081 | 0.02 | 0.6706 | -0.05 | 0.2722 | 0.00 | 0.9963 | -0.06 | 0.2955 | 0.12 | 0.4772 |
| clinic5 | 0.03 | 0.5861 | 0.00 | 0.9291 | -0.01 | 0.7995 | 0.03 | 0.5495 | -0.06 | 0.3032 | -0.05 | 0.7744 |
| clinic6 | 0.02 | 0.6732 | 0.02 | 0.6402 | 0.00 | 0.9824 | -0.01 | 0.7321 | 0.05 | 0.3110 | . |  |
| age1824 | -0.03 | 0.4833 | -0.14 | 0.0042 | -0.05 | 0.3127 | -0.21 | <. 0001 | -0.08 | 0.1338 | 0.09 | 0.6007 |
| age2534 | 0.02 | 0.7522 | 0.03 | 0.5129 | 0.05 | 0.3521 | -0.04 | 0.4209 | -0.02 | 0.7952 | -0.09 | 0.6448 |
| age4554 | 0.03 | 0.6133 | -0.02 | 0.7113 | -0.04 | 0.4580 | 0.00 | 0.9935 | -0.01 | 0.8660 | 0.07 | 0.7403 |
| age5564 | 0.07 | 0.1932 | 0.06 | 0.2763 | -0.01 | 0.8569 | 0.01 | 0.9042 | 0.05 | 0.4362 | 0.08 | 0.6808 |
| age6574 | 0.07 | 0.2137 | 0.12 | 0.0275 | -0.03 | 0.5933 | 0.08 | 0.1223 | -0.01 | 0.8260 | -0.31 | 0.0779 |
| age75 | 0.12 | 0.0140 | 0.08 | 0.1272 | 0.00 | 0.9458 | 0.09 | 0.0611 | -0.13 | 0.0291 | 0.04 | 0.8180 |
| educ_lths | 0.07 | 0.1416 | 0.09 | 0.0821 | -0.03 | 0.6106 | 0.06 | 0.2001 | 0.04 | 0.5034 | 0.28 | 0.1178 |
| educ_2yr | 0.00 | 0.9724 | -0.06 | 0.2235 | -0.05 | 0.3066 | -0.11 | 0.0248 | 0.04 | 0.4348 | 0.32 | 0.1360 |
| educ_4yr | 0.03 | 0.5017 | -0.02 | 0.6362 | 0.09 | 0.0582 | 0.00 | 0.9703 | 0.03 | 0.5470 | 0.42 | 0.0209 |
| male | 0.12 | 0.0050 | 0.00 | 0.9494 | 0.09 | 0.0373 | 0.09 | 0.0315 | 0.12 | 0.0164 | -0.16 | 0.3139 |
| q71chron | 0.02 | 0.6036 | -0.06 | 0.2091 | -0.06 | 0.1970 | -0.12 | 0.0043 | 0.03 | 0.6333 | -0.12 | 0.5009 |
| q74chron | -0.04 | 0.3460 | 0.00 | 0.9320 | 0.01 | 0.9102 | 0.02 | 0.6692 | -0.04 | 0.4852 | -0.24 | 0.1103 |
| F-test | $\begin{array}{r} \mathrm{F}(17,510) \\ =2.58 \end{array}$ | 0.0005 | $\begin{array}{r} \mathrm{F} \\ (17,495)= \\ 2.74 \end{array}$ | 0.0002 | $\begin{array}{r} \mathrm{F} \\ (17,509)= \\ 1.82 \end{array}$ | 0.0236 | $\begin{array}{r} \mathrm{F} \\ (17,508)= \\ 6.17 \end{array}$ | <.0001 | $\begin{array}{r} \mathrm{F}(17,380) \\ =1.32 \end{array}$ | 0.1786 | $\begin{array}{r} \hline \mathrm{F}(16,44)= \\ 0.95 \end{array}$ | 0.5197 |
| R-square | 0.0791 |  | 0.0861 |  | 0.0572 |  | 0.1710 |  | 0.0556 |  | 0.2574 |  |
| Adj R-square | 0.0484 |  | 0.0547 |  | 0.0257 |  | 0.1433 |  | 0.0133 |  | -0.0126 |  |

Note: Regressions include clinics, age, educational attainment, gender, and chronic condition indicators.


[^0]:    ${ }^{1}$ It is worth noting that we also ran analyses after recoding questions $59-63$ to "no" answers if question 58 was a "no" (skipping people to Q64). This recoding preserved information about perceived discrimination for people who said they never felt judged unfairly or treated with disrespect by a health professional in the last 12 months. However, it induced more internal consistency among items questions 59-63 than would otherwise be the case and should therefore be considered an upwardly biased estimate of reliability. When we did this, item-scale correlations increased but these correlations were still only large for Q59 and Q60. The item-scale correlations were 0.26 (Q62), 0.25 (Q63), and 0.06 (Q61) for the other three items.

