Development And Evaluation Of A Clinical Quality Scorecard For Cornell Scott-Hill Health Center

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Development and Evaluation of a Clinical Quality Scorecard for Cornell Scott-Hill Health Center

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Abstract

Background
Healthcare organizations are making the transition from volume to value-based care, thus relying on standardized performance measures for quality improvement. Some challenges of this strategy include the following: ambiguity and inconsistency of metric definitions across reporting systems, a dearth of measures that are representative of clinical care and patient experience, and unfair or inappropriate comparisons of organizations serving patients exposed to different sociodemographic risk factors.

Rationale
Developing and evaluating a clinical quality scorecard that is internal to a federally qualified health center will provide insight into its value-based performance. It will also allow for efficient improvement in clinical care and patient experience as well as data transparency among health care providers. The goal of the current project was to develop one such clinical quality scorecard for implementation at Cornell Scott-Hill Health Center (CS-HHC).

Method
Quality indices were compiled from a list of standardized performance measures included in the health care initiatives of CS-HHC. The scorecard was implemented in September 2018, and measures taken before and after implementation were compared. Primary outcomes included patient outcomes (physical measures such as diabetic hemoglobin A1c and blood pressure levels) as well as clinic endpoints (overall quality of care and likelihood of recommending clinic). Specific time points for selected metrics were plotted into line graphs to allow visual analysis over time and monthly progress reports were distributed to department leaders of CS-HHC. Analysis for the current study was limited to measures that are administered to the health center on a monthly basis. Metrics were evaluated 3-months prior to scorecard implementation, and
were compared to outcomes measured 3-months after scorecard distribution. A cross-sectional survey was administered at baseline and 5-months following scorecard implementation to assess changes in comprehension of metrics among medical directors.

**Results**
Visual inspection of the line graphs suggested improvement from baseline to post-scorecard implementation in the following measures of patient outcomes: HIV viral load suppression, CD4 monitoring, lipid screening, hepatitis B vaccination and diabetic low density lipoprotein levels. However, these changes did not reach statistical significance when evaluated with unpaired students’ t-tests. Questionnaire item responses show an improvement in medical directors’ comprehension of clinical quality measures from baseline to follow-up; the mean scores for each item were descriptively higher after 5 months of scorecard distribution than at baseline.

**Conclusions**
The development and evaluation of a clinical quality scorecard suggests that improvement in clinical care, patient experience and data transparency is feasible within a federally qualified health center. Future research should utilize a longitudinal intervention design to explore possible trends in health center performance metrics and analyze medical directors’ comprehension of clinical quality measures.
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**Introduction**

It is widely known that the US healthcare system is fragmented and decentralized by design. Historically, the volume of health services delivered has been the key driver of performance within health care delivery organizations. Fortunately, healthcare institutions are making the transition from volume to value-based care (Austin et al. 2015; Porter et al. 2016). For the sake of quality improvement, health care organizations adhere to a number of standardized performance measures with respect to patient outcomes, such as good control of diabetes and avoidance of antibiotics in adults with acute bronchitis. Metric definitions, however, can be ambiguous and inconsistent across reporting systems. In addition, not all measures truly represent quality in clinical care and patient experience (Casalino et al. 2016). Research shows that less than 30% of physician practices deemed current metrics to be moderately representative of quality care (Casalino et al. 2016).

Difficulties also arise when using these quality measures to compare health care providers that serve patients exposed to distinct sociodemographic risk factors. Organizations serving disadvantaged populations may be misclassified as ‘low quality’ based on unadjusted outcome measures whereas centers providing care to wealthy clients may be ranked higher in quality metrics (Burstin et al. 2016; Fiscella et al. 2014). Therefore, health care organizations serving low income populations need to be especially aware of their performance on clinical quality measures in order to effectively target clinical quality improvement efforts. The current project aims to addresses this issue through the development of an internal quality scorecard for a federally qualified health center. Health care institutions utilize scorecards to track performance in health services, clinical care and patient satisfaction (Austin et al. 2015). The scorecard incorporates and defines measures that medical directors consider to be determinants of quality
in various clinical departments and the organization as a whole. The input of health professionals is essential for consolidating the quality metrics which truly matter for health center performance and population health. An internal scorecard also eliminates the problems created by external comparisons that do not account for patient sociodemographic risk factors, and allows the organization to identify areas of progress and areas in need of more intensive focus. A clinical quality scorecard that is internal to a federally qualified health center and relevant across clinical departments can allow for efficient improvement in clinical care, patient experience and data transparency (Dehmer et al. 2014).

The aim of this project was to implement a clinical quality scorecard at a federally qualified health center as a means to identify high priority quality performance metrics, and to spur improvement in clinical care and patient experience. In order to achieve this aim, a scorecard was constructed for Cornell Scott-Hill Health Center (CS-HHC). CS-HHC is a multi-site multispecialty organization that provides affordable care to underserved populations in the Greater New Haven area. The scorecard consists of quality metrics that are deemed a priority by various departments at CS-HHC.

Specific measures were utilized as a proxy for improvement in clinical care and patient experience (i.e. overall quality of care, hepatitis B vaccination among patients with HIV and diabetes composite metrics). Collaboration with medical leadership occurred to distribute the scorecard to department leaders on the monthly basis; data transparency is necessary for efficient allocation of resources and attention (Dehmer et al. 2014; Lindenauer et al. 2014). Pre- and post-data for the specified outcome measures were collected and analyzed in the span of six months. In addition, a questionnaire was developed and administered to evaluate awareness of key quality measures amongst department leaders. It is hypothesized that scorecard users will have increased
awareness of organizational performance on important clinical quality measures, and that ultimately the use of the scorecard will result in improvements in clinical care and patient outcomes.

**Methods**

**Development**

Quality measures were compiled from a list of standardized performance measures included in the following health care initiatives at CS-HHC: Patient Centered Medical Home Plus (PCMH+), Practice Transformation Network (PTN) and Uniform Data System (UDS). Quality measures with their corresponding definitions were compiled in Microsoft Excel and sorted by area of clinical relevance (e.g. Adult Medicine, Pediatrics, Women’s Health, Infectious Disease, Dental, Behavioral Health, or Organization-wide). Meetings were conducted with medical directors and representatives of each department to discuss key measures that are in need of improvement or ranked as a priority for performance tracking for their clinical area. The clinical quality scorecard was developed and included one to five quality measures for each department, as well as several high-priority measures chosen for the entire organization. Data for selected metrics were obtained from the following sources: CT Medicaid CareAnalyzer, PRCEasyView, HRSA, i2i and OPCC. Currently available data were merged into a single database (in Excel) and specific time points for measurements were plotted into line graphs to allow visual analysis over time. Brief measure definitions were included in a “Legend” by each graph. A full list of patient metrics appears in Appendix A. The scorecard appears in Appendix B. Appendix C contains the patient experience survey and the medical provider questionnaire appears in Appendix D.

**Evaluation**
Clinical care and patient experience were evaluated via multiple metrics. Several of the key metrics are available only as 12-month rolling statistics or only with a 3-month delay due to medical claims lag, so analysis for the current study was limited only to measures that are reported monthly without a lag period. These included: patient experience (e.g. rating of overall quality of care and likelihood of recommending clinic); infectious disease (e.g. viral load suppression, CD4 monitoring, lipid screening and hepatitis B vaccination); diabetes control (e.g. hemoglobin A1c, low density lipoprotein level and blood pressure). Primary measures were evaluated prior to implementation of the scorecard and were compared to outcomes measured after implementation of the scorecard. Data analysis was performed using SAS statistical software. Monthly progress reports were generated from scorecard data and disseminated to medical directors of CS-HHC. A pre- and post-implementation survey was developed to assess awareness among medical leadership of the key quality measures contained in the scorecard. The questionnaire was administered online and consists of 5 questions in the six-point Likert scale format, which includes strongly disagree, disagree, somewhat disagree, somewhat agree, agree and strongly agree (see Appendix D). The even number of item responses allows for easier grouping into an unfavorable or favorable category.

**Data Analysis**

For the ‘Patient Experience’ measures (Appendix C), mean scores and standard deviations were calculated at baseline and post-implementation. For the purpose of this study, baseline is a weighted average of data collected during the 3 months prior to scorecard distribution; post-implementation refers to the weighted average of data gathered 3 months after the scorecard has been introduced to the center. Since data were not matched, independent samples before and after implementation was assumed. An independent t-test was used to examine a significant
difference in mean scores before and after implementation. For the remaining scorecard metrics with categorical outcomes, a chi-square goodness of fit test was conducted to compare observed values at post-implementation and expected values from baseline. Statistical significance in the analyses was based on an alpha of 0.05.

With respect to the medical provider survey administered at baseline and 5-month follow-up, higher scores represented increased understanding of clinical quality measures. Mean scores of each item were calculated; a statistical analysis could not be performed because survey responses were anonymous and thus not matched in the study. The survey completion rate at baseline and 5-month follow-up was 100%. The response rate was 76.5% for the baseline survey with a potential reach of 17 people; the follow-up survey had a response rate of 88.9% with a potential reach of 18 individuals. Figure 4 and Figure 5 show the distribution of item responses among medical directors at CSHHC before scorecard implementation and at 5-month follow-up, respectively.

**Results**

**Patient Experience Metrics**

*Overall Quality of Care*

Descriptively, the weighted mean score at post-implementation (M= 4.22, SD= 0.898) was lower than baseline (M=4.32, SD=0.897). However, there was no significant difference between mean scores at baseline and post-scorecard t(621) =1.29 , p=0.199. *A score of ‘5’ means Excellent.*

*Likelihood of Recommending Clinic*

The weighted mean score at post-implementation (M=4.23, SD=0.898) was descriptively less than baseline (M=4.29, SD=0.924). This difference is not significant between baseline and post-scorecard mean scores t(619) =0.93, p=0.354. *A score of ‘5’ means Excellent.*
**Infectious Disease Metrics**

**Viral Load Suppression**

Descriptively, the proportion of HIV patients who achieved viral load suppression was higher at post-implementation (84.6%) as compared to baseline (81.8%). A chi-square goodness-of-fit test indicates there was no significant difference, $\chi^2 (1, n=244) = 0.52$, $p= 0.471$.

**CD4 Monitoring**

The proportion of HIV patients who had 2 or more CD4 counts performed at least 3 months apart was descriptively higher at post-implementation (68.3%) than baseline (67.3%). However, this difference was not significant, $\chi^2 (1, n=230) = 0.05$, $p= 0.828$.

**Lipid Screening**

Descriptively, the proportion of HIV patients prescribed HIV antiretroviral therapy and had fasting lipid panel was higher at post-implementation (71.8%) as compared to baseline (70.5%). A chi-square goodness-of-fit test indicates there was no significant difference, $\chi^2 (1, n=209) = 0.09$, $p= 0.762$.

**Hepatitis B Vaccination**

The proportion of HIV patients with completed vaccination series over the past 12 months was descriptively higher at post-implementation (78.8%) than baseline (75.3%). However, this difference was not significant, $\chi^2 (1, n=94) = 0.68$, $p= 0.409$.

**Adult Medicine Metrics**

**Diabetes Control**

Descriptively, the proportion of patients with good control of their diabetes was lower at post-implementation (21.0%) as compared to baseline (23.7%). A chi-square goodness-of-fit test indicates there was no significant difference, $\chi^2 (1, n=626) = 0.40$, $p= 0.526$. 
**Hemoglobin A1C (HbA1c)**

The proportion of patients with last HbA1c test less than 8.0 over the past 12 months was descriptively lower at post-implementation (55.6%) than baseline (56.9%). However, this difference was not significant, $\chi^2 (1, n=626) = 0.04, p=0.850$.

**Low Density Lipoprotein (LDL)**

Descriptively, the proportion of patients with last LDL test less than 100 in the past 12 months was higher at post-implementation (46.0%) as compared to baseline (45.5%). A chi-square goodness-of-fit test indicates there was no significant difference, $\chi^2 (1, n=626) = 0.01, p=0.917$

**Blood Pressure (BP)**

The proportion of patients with last BP test less than 140/90 in the past 12 months was descriptively lower at post-implementation (70.3%) than baseline (73.8%). However, this difference was not significant, $\chi^2 (1, n=626) = 0.63, p=0.429$.

**Comprehension of Clinical Quality Measures**

The medical provider survey contained 5 items (Appendix D). These questions were administered on a 6 point Likert scale ranging from unfavorable to favorable understanding of clinical quality metrics. As shown in Figure 4 and Figure 5, the mean scores of each item were descriptively higher at post-scorecard implementation than baseline.

Table 1 shows the distribution of opinions toward comprehension of clinical quality measures. Since questionnaires were administered anonymously, it is not possible to match provider responses before and after scorecard implementation, thus precluding the ability to test for statistical differences. Nevertheless, the data are reported here for descriptive purposes. At the 5-month follow-up, 93.8% (N=15) of medical directors agreed or strongly agreed that they were
aware of quality measures most important to their department at CSHHC compared to 84.6% (N=11) at baseline. When asked about awareness of quality measures that are most important to other departments at CSHHC, 50.0% (N=8) of medical directors responded *strongly agree* or *agree* at follow-up in comparison to 38.5% (N=5) before scorecard distribution. At the 5-month follow-up, 75.0% (N=12) of medical directors *agreed or strongly agreed* that they understand the definitions of quality measures most important to CSHHC compared to 69.2% (N=9) at baseline. When asked about awareness of their department’s performance on important clinical quality measures, 75.0% (N=12) of medical directors responded *strongly agree* or *agree* at follow-up in comparison to 69.2% (N=9) at baseline. Lastly, 56.3% (N=9) of medical directors at follow-up *strongly agree* or *agree* that they are aware of CSHHC’s overall performance on important clinical quality measures as compared to 23.1% (N=3) before scorecard distribution.

**Discussion**

The purpose of this study was to develop and evaluate a clinical quality scorecard at a federally qualified health center as a means to improve clinical care and patient experience. Another aim of this investigation was to create an internal scorecard that increases data transparency and comprehension of quality metrics among medical directors. Since health care organizations are transitioning from a volume to value-based approach in care, scorecards are beneficial for monitoring performance in health services, patient satisfaction and clinical care (Austin et al. 2015, Porter et al. 2016). The construction of a scorecard for Cornell Scott-Hill Health Center (CS-HHC) relied on collecting performance measures from multiple reporting systems and clearly displaying measure definitions to remove ambiguity. Collaboration with medical directors at CSHHC guided the consolidation process of metrics and enhanced awareness of clinical quality measures that were in need of improvement. The evaluation of the scorecard was
two-fold: independent t-tests and chi-square goodness of fit were utilized to determine a significant difference in measures from baseline to 3-month post-implementation; a medical provider survey administered before scorecard distribution and at 5-month follow-up examined comprehension of metrics deemed important by the entire health center and individual departments.

Descriptively, there was improvement from baseline to post-scorecard implementation in the following measures: viral load suppression, CD4 monitoring, lipid screening, hepatitis B vaccination and diabetic low density lipoprotein levels. However, the observed values of these quality metrics were not statistically different from expected values. This result suggests that a positive change in measures was likely due to chance. The remaining metrics included in the study showed a decline from baseline to post-implementation of the scorecard. Likewise, this difference was not statistically significant and most likely attributed to chance.

Questionnaire item responses descriptively show an improvement in medical directors’ comprehension of clinical quality measures from baseline to follow-up. Higher mean scores after 5 months of scorecard distribution suggests a greater percentage of medical directors became more aware of quality measures that are not only important to their specific department, but also other departments within CSHHC. The survey results also suggest that a greater proportion of medical directors show an increased awareness of department performance on important quality measures and that of the entire organization. Lastly, the observed trend of increase in mean scores indicates a better understanding of quality measure definitions among medical directors at CSHHC, although this trend did not achieve statistical significance.
Limitations

A limitation of the present study was the lag of quality metric data available to CSHHC. The measures included in this investigation had a 3-month lag or less, though many metrics present in the quality scorecard had a lag period ranging from 4-12 months, precluding their inclusion in this analysis. Additionally, there were a limited number of months for which data was available pre- and post-implementation, thus restricting the evaluation of scorecard impact on the quality metrics performance. Current research suggests that not all standardized performance measures are representative of quality (Casalino 2016). In order to prevent this form of inaccuracy in rating performance, a phase of scorecard development incorporated the knowledge of medical directors to gauge which measures are determinants of quality in their respective clinical departments and the entire organization. Therefore, it was anticipated that the measures selected for statistical analysis were an accurate representation of the quality of healthcare delivery at CSHHC.

Additionally, the study period was short in duration. Data were collected during the 3 months prior to and after scorecard distribution; quality metrics consisted of patient outcomes and clinic endpoints that take several months to achieve measurable improvement. Given this, the results of the current study reflected no significant change from baseline to post-implementation for all measures. A longitudinal intervention is needed to adequately assess the impact of a scorecard on clinical quality measures.

Another limitation of the intervention-like study was the exclusion of an additional health center to serve as a control group. The quality scorecard was an internal project which included measures deemed necessary for performance tracking on behalf of CSHHC medical directors. A within-group comparison of pre- and post-implementation data avoids misclassification of quality based on unadjusted outcome measures (Fiscella 2014). However, CSHHC was involved
in various health care initiatives throughout the study period, which could have influenced changes seen in quality outcomes. Without a control group, it is difficult to address this form of confounding and in turn, evaluate the effects of the scorecard alone on clinical care and patient experience.

Lastly, the seasonality of patient groups throughout the study period introduced the possibility of assessing different populations at baseline and post-implementation of the scorecard, which is an inequivalent comparison. The baseline time period included June through August; post-scorecard months were October through December. The current investigation was unable to account for seasonal trends in performance measures due to its limited duration. A longitudinal study design would allow for a better assessment of quality metrics between the same time periods at subsequent years.

**Future Research**

Future research should conduct a longitudinal intervention study that examines a change in metrics across several years of scorecard distribution. The present investigation tracked performance in quality measures for a short duration, which limited the number of data points collected during pre- and post-implementation of the scorecard. A long-term investigation period would address the lag in data dispersal from multiple reporting tools to a federally qualified health center. This strategy would also allow for an analysis of possible trends in health center performance metrics. Additionally, a longitudinal intervention study would be able to incorporate a large set of metrics that are representative of clinical quality; the study design would take into account the lag in data dispersal that normally limits the number of measures that can be assessed for tracking change in clinical care and patient experience. Lastly, the inclusion of an additional health center as a control group would help move this research forward; a
between-group comparison of organizations that serve populations with similar sociodemographic risk factors would mitigate potential confounders, such as involvement in concurrent health care initiatives.

Despite its limitations, this study provides the groundwork for developing and evaluating a clinical quality scorecard that improves clinical care, patient experience and data transparency within a federally qualified health center.
References


Appendices

Figure 1. Changes in Patient Experience Metrics from Baseline to 3 months (score of ‘5’ is Excellent, ‘1’ is Poor)

Figure 2. Changes in Infectious Disease Metrics from Baseline to 3 months (% of patients meeting metric)
Figure 3. Changes in Adult Medicine Metrics from Baseline to 3 months (% of patients meeting metric)

Table 1. Distribution of opinions about awareness of clinical quality measures

<table>
<thead>
<tr>
<th>Survey item</th>
<th>Baseline, N=13</th>
<th>5-Month Follow-up, N=16</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am aware of quality measures most important to my department at CSHHC</td>
<td>11 (84.6)</td>
<td>15 (93.8)</td>
</tr>
<tr>
<td>I am aware of quality measures most important to other departments at CSHHC</td>
<td>5 (38.5)</td>
<td>8 (50.0)</td>
</tr>
<tr>
<td>I understand the definitions of quality measures that are important to CSHHC</td>
<td>9 (69.2)</td>
<td>12 (75.0)</td>
</tr>
<tr>
<td>I am aware of my department’s performance on important clinical quality measures</td>
<td>9 (69.2)</td>
<td>12 (75.0)</td>
</tr>
<tr>
<td>I am aware of CSHHC’s overall performance on important clinical quality measures</td>
<td>3 (23.1)</td>
<td>9 (56.3)</td>
</tr>
</tbody>
</table>
**Figure 4.**

**Clinical Quality Measures - Opinions at Baseline**
This graphic shows opinions regarding individual comprehension of clinical quality measures **before** scorecard distribution.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am aware of quality measures most important to my department at CSHHC</td>
<td></td>
<td></td>
<td>5.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of quality measures most important to other departments at CSHHC</td>
<td>4.15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand the definitions of quality measures that are important to CSHHC</td>
<td>4.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of my department’s performance on important clinical quality measures</td>
<td>4.69</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of CSHHC’s overall performance on important clinical quality measures</td>
<td>3.77</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 5.**

**Clinical Quality Measures - Opinions at 5-Month Follow-up**
This graphic shows opinions regarding individual comprehension of clinical quality measures **after** 5 months of scorecard distribution.

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Disagree</th>
<th>Somewhat Disagree</th>
<th>Somewhat Agree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am aware of quality measures most important to my department at CSHHC</td>
<td></td>
<td></td>
<td>5.38</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of quality measures most important to other departments at CSHHC</td>
<td>4.38</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I understand the definitions of quality measures that are important to CSHHC</td>
<td>5.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of my department’s performance on important clinical quality measures</td>
<td>4.94</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>I am aware of CSHHC’s overall performance on important clinical quality measures</td>
<td>4.58</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
APPENDIX A: Measure Definitions

Patient Experience - Overall Quality of Care
Percentage of patients who rated overall quality of care of CSHHC as 'excellent'*

Patient Experience - Likelihood of Recommending Clinic
Percentage of patients who rated likelihood of recommending clinic to friends/relatives as 'excellent'*

*Five Levels of Patient Experience: Excellent, Very Good, Good, Fair and Poor

Viral Load Suppression
Percentage of HIV patients with viral load less than 200 copies/ml at last test over the past 12 months.

CD4 Monitoring
Percentage of HIV patients with 2 or more CD4 counts performed at least 3 months apart over the past 12 months.

Lipid Screening
Percentage of HIV patients prescribed HIV antiretroviral therapy and had fasting lipid panel over the past 12 months.

Hepatitis B Vaccination
Percentage of HIV patients with completed vaccination series over the past 12 months.

Diabetes Control
Percentage of patients 18-75 years old with diabetes mellitus, 2 or more primary care visits with diabetes mellitus codes in last 2 years, 1 or more visit in last 12 months and met the following in past 12 months: last HbA1c less than 8.0, last LDL less than 100, last BP less than 140/90; composite = meeting all 3; higher is better

Diabetes Control Sub-Measures

Hemoglobin A1C (HbA1c)
Percentage of patients with last HbA1c test less than 8.0 in the past 12 months.

Low Density Lipoprotein (LDL)
Percentage of patients with last LDL test less than 100 in the past 12 months.

Blood Pressure (BP)
Percentage of patients with last BP test less than 140/90 in the past 12 months.
APPENDIX B: Clinical Quality Scorecard

Overall

LEGEND

Unique Patients: # of unique patients seen at the center in the past month

Unique Visits: # of patient visits at the center in the past month

ED Visits: # of ED visits per Husky patient per year (over past 12 months)

Patient Experience - Overall Quality of Care: % of patients who rated overall quality of care of CSHHC as 'excellent'*

Patient Experience - Likelihood of Recommending Clinic to Friends/Relatives: % of patients who rated likelihood of recommending clinic to friends/relatives as 'excellent'*

*Five Levels of Patient Experience: Excellent, Very Good, Good, Fair and Poor
Cost of Care

**Overall Cost of Care**

![Graph showing the overall cost of care](Image)

**Relative Risk Score**

![Graph showing the relative risk score](Image)

**Overall Cost Index**

![Graph showing the overall cost index](Image)

**Cost Index Breakdown**

![Graph showing the cost index breakdown](Image)

**Legend**

**Expected Cost**: Expected total health care costs ($ USD) per CSHHC Husky member per month adjusted for patient risk score (over past 12 months)

**Actual Cost**: Actual total health care costs ($ USD) per CSHHC Husky member per month (over past 12 months)

**RRS**: proprietary risk score (1=average) reflecting CSHHC Husky patient diagnosis complexity + expected healthcare utilization; higher is better (increases our Expected Cost, which lowers Cost Index)

**Cost Index**: Actual cost of care/Expected cost of care (over past 12 months); lower is better
### Adult Medicine

#### Avoidance of Abx for Acute Bronchitis

#### Avoidance of Low Back Pain Imaging

#### Diabetes Control

#### Asthma Controller Medication Adherence

---

**LEGEND**

**Acute Bronchitis:** % of 18-64 yo. with outpatient or ED visit for acute bronchitis dx + NOT prescribed antibiotics within 3 days of visit (over past 12 months); higher is better

**Low Back Pain:** % of 18+ yo. with outpatient or ED visit for new primary dx low back pain who did NOT receive X-ray, CT, or MRI for dx low back pain within 28 days of initial dx (over past 12 months); higher is better

**Diabetes Control:** % of 18-75 yo. with DM and 2+ visits with DM codes in last 2 years and 1+ visit in last 12 mo. and met the following in past 12 mo: last HbA1c <8.0, last LDL <100, last BP <140/90; composite = meeting all 3; higher is better

**Asthma Controller Med Adherence:** % of patients 5-64 yo. with persistent asthma on controller med for at least 50%/75% of tx period (over past 12 months); higher is better

---

[Source: www.cornellscott.org](http://www.cornellscott.org)
Well-Care Visits: % of children 15 mo. who had recommended # of well-care visits (6) with Pediatrician; higher is better

Developmental Screening: % of children 1,2 or 3 yo. screened for risk of developmental, behavioral + social delays using standardized screening tool (over past 12 months); higher is better

Adolescent Well-Care Visits: % of 12-21 yo. with at least 1 PCP or OB/GYN visit (over past 12 months); higher is better

Upper Respiratory Infection: % of children 3 mo. - 18 yo. with outpatient or ED visit for dx URI and NOT dispensed antibiotic within 3 days of visit (over past 12 months); higher is better
Women’s Health

**Breast Cancer Screening**

**Cervical Cancer Screening**

**Prenatal Visit**

**Postpartum Visit**

---

**Legend**

**Breast Cancer**: % of 52-74 yo. women with mammogram in prior 2 years

**Cervical Cancer**: % of 23-64 yo. women with pap smear in last 3 years

**Prenatal**: % women delivering in past 12 months with a prenatal visit during 1st trimester or within 42 days of enrollment

**Postpartum**: % women delivering in past 12 months with postpartum visit 21-56 days after delivery
Infectious Disease

**LEGEND**

**Viral Load Suppression:** % of HIV patients with viral load <200 copies/ml at last test (over past 12 months)

**CD4 Counts:** % of HIV patients with 2+ CD4 counts performed at least 3 mo. apart (over past 12 months)

**Lipid Screening:** % of HIV patients prescribed HIV antiretroviral therapy + had fasting lipid panel (over past 12 months)

**Hepatitis B Vaccination:** % of HIV patients with completed vaccination series
APPENDIX C: CSHHC Patient Experience Survey

Q1 Would you say the likelihood of your recommending [name of health clinic] to friends and relatives is:

- Excellent
- Very Good
- Good
- Fair
- Poor

Q2 Overall, would you rate the quality of care provided as:

- Excellent
- Very Good
- Good
- Fair
- Poor
APPENDIX D: CSHHC Quality Measures Survey

Q1 I am aware of the quality measures that are most important to my department at CSHHC.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q2 I am aware of the quality measures that are most important to other departments at CSHHC.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Somewhat Agree
- Agree
- Strongly Agree
Q3 I understand the definitions of quality measures that are important to CSHHC.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q4 I am aware of my department's performance on important clinical quality measures.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Somewhat Agree
- Agree
- Strongly Agree

Q5 I am aware of CSHHC's overall performance on important clinical quality measures.

- Strongly Disagree
- Disagree
- Somewhat Disagree
- Somewhat Agree
- Agree
- Strongly Agree