CBOC PERFORMANCE EVALUATION

Performance Report 1:
Measures Based on Austin Automation Center and Patient Survey Data

MDRC
MANAGEMENT DECISION AND RESEARCH CENTER
HSR&D
Health Services Research & Development Service

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Performance Report 1: Measures Based on Austin Automation Center and Patient Survey Data

by

John Fortney, Ph.D.
Center for Mental Health and Outcomes Research
Health Services Research and Development
Central Arkansas Veterans Healthcare System
North Little Rock VA Medical Center

Steven Borowsky, M.D., M.P.H.
Center for Chronic Disease Outcomes Research
Health Services Research and Development
Minneapolis VA Medical Center

Michael K. Chapko, Ph.D.
Ashley Hedeen, M.D.
Northwest Center for Outcomes Research in Older Adults
Health Services Research and Development
VA Puget Sound Health Care System – Seattle Division

for the

Management Decision and Research Center
Health Services Research and Development Service
Office of Research and Development
Department of Veterans Affairs

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HIGHLIGHTS

The CBOC Performance Evaluation Project was initiated in FY 98 in response to the Under Secretary for Health's request that HSR&D formulate a plan for evaluating CBOC performance and conduct a system-wide evaluation of CBOCs.

This is the third in a series of reports for this project. The first report detailed the CBOC characteristics and performance measures against which the CBOCs would be assessed, as formulated by the national CBOC Performance Evaluation Committee convened for the project.[1] The performance measures are grouped in six domains: access to care, cost, mental health, quality, patient satisfaction, and utilization. The second report presented characteristics for each CBOC as reported through the VISNs.[2]

The current report provides results for selected CBOC performance measures in five of the six domains based on data from the Austin Automation Center and the National VA Outpatient Customer Satisfaction Survey; no cost analyses are included in this report. Future reports will present additional measures from all six domains based on other data sources including medical record reviews and Decision Support System cost assessments.

The key findings of this report include:

Comparison of CBOCs *vs* Parent VAMCs

On most, though not all performance measures included in this report, CBOCs are meeting standards recommended by the CBOC Performance Evaluation Committee. In casemix-adjusted comparisons with primary care patients in Parent VAMCs:

- CBOC patients reported higher levels of satisfaction on seven of the eight Customer Service Standards (CSS) on the National Outpatient Customer Satisfaction Survey, though these differences were often small for most CSS categories. The most substantial difference was in higher satisfaction with access.
- CBOC patients were less likely to report that one provider or team was in charge of their care, but did not report more problems with coordination of care on the CSS measures.
- CBOC patients had substantially more primary care stops and were more likely to be seen within 20 minutes of their scheduled appointments. While they had significantly fewer specialty care stops, they reported no greater problems gaining access to specialty care.

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1 CBOC Evaluation Project. *Recommended CBOC Performance Measures and CBOC Characteristics.* HSR&D Management Decision and Research Center. Department of Veterans Affairs. November 1998.

2 CBOC Evaluation Project. *CBOC Characteristics*. HSR&D Management Decision and Research Center. Department of Veterans Affairs. February 1999.

- Overall, CBOC patients did not differ in number of inpatient days or inpatient admissions; however in 12 VISNs, CBOC patients had significantly fewer inpatient days and/or admissions.
- CBOCs treated a similar proportion of their patients for mental health problems and were equally timely in providing outpatient mental health follow-up following inpatient psychiatric treatment.
- CBOCs had a significantly higher proportion of new users and a slightly lower proportion of high priority veterans (priority levels 1 and 2).

The finding that CBOC patients are more satisfied with their access to care is encouraging since providing improved access is an important objective of community-based care. The use of more primary care stops and shorter waiting times is consistent with the perceptions of greater access and with the emphasis on primary care at the CBOCs. The findings that CBOCs are performing comparably to the primary care clinics of the Parent VAMCs in treating mental health problems is both encouraging and surprising, since in our earlier report we found that only 42% of CBOCs offer specialty mental health services on site.

The findings of fewer specialty stops and, in some VISNs, fewer inpatient admissions, however, can be interpreted in different ways. On one hand, it may indicate that the increased use of primary care by CBOC patients reduces the need for specialty outpatient and inpatient care at the Parent VAMC. On the other hand, it may indicate that CBOC patients face greater barriers in the referral process for specialty outpatient and inpatient care. A third interpretation is that CBOC patients are more likely to use the private sector for specialty and inpatient care. Given that CBOC patients were not more likely to report problems with access to specialty care than Parent VAMC patients, the first interpretation seems more likely, though it bears watching. Also bearing watching is the finding that CBOC patients were less likely to report that one team was in charge of their care. Under a primary care model, we assume that having a single provider team is important to managing care, but CBOC patients did not report more coordination problems on the satisfaction survey.

The findings that CBOCs are attracting more new users and are serving veterans with lower priority levels than the primary care clinics of the Parent VAMCs suggests that CBOCs are drawing veterans beyond the VA traditional patient base.

Comparison of VA-Staffed vs. Contracted CBOCs

On most performance measures, Contract CBOCs and VA-staffed CBOCs were not significantly different. Significant differences were found in four areas. In casemix-adjusted comparisons with Contract CBOCs:

- Patients in VA-staffed CBOCs had more primary care stops and more specialty stops.
- Patients in VA-staffed CBOCs were more likely to be assigned a mental health diagnosis.

- Patients in VA-staffed CBOCs had shorter waiting times for follow-up care following hospitalization.
- VA-staffed CBOCs treated a slightly lower proportion of new users.

These differences in performance measures are consistent with differences in the characteristics of VA-staffed and Contracted CBOCs presented in our earlier report. VA-staffed CBOCs have a higher volume of visits, provide more intense care and are less likely to contract with non-VA providers, so it is not surprising that they have more primary care and specialty stops. Likewise, they are more likely to provide specialty mental health treatment, so it follows that patients are more likely to be assigned a mental health diagnosis. Shorter waiting time for follow-up care may reflect closer ties and better coordination between VA-staff CBOCs and Parent VAMCs, though there is no direct evidence of this conclusion. Despite this contrast in outpatient utilization patterns, however, there were no differences in inpatient utilization and very few differences on satisfaction with care as reported on the VA National Outpatient Customer Satisfaction Survey.

The finding that Contracted CBOCs treat more new users is consistent with their practice of caring for veterans who are part of a larger patient mix. They are likely to have a broader base from which to recruit new patients. Contracted CBOCs are an average further from the Parent VA and therefore may have a larger proportion of veterans within their catchment area who have not used the Parent VA in the past.

TABLE OF CONTENTS

Highlights i

Introduction 1

Recommended CBOC Performance Measures 2

Methods 3

Results for Performance Measures 7

Access 2: Patients seen within 20 minutes of scheduled appointment 8

Access 3: Average waiting time for follow-up after hospitalization or surgery 9

Mental Health 1: Patients assigned a mental health diagnosis 10

Mental Health 3: Patients seen within 30 days after hospitalization for a mental health disorder 11

Quality 1: Patients reporting one provider or team in charge of care 12

Satisfaction 1a: CSS Score—Access/Timeliness 13

Satisfaction 1b: CSS Score—Patient Education/Information 14

Satisfaction 1c: CSS Score—Preferences 15

Satisfaction 1d: CSS Score—Emotional Support 16

Satisfaction 1e: CSS Score—Coordination of Care (overall) 17

Satisfaction 1f: CSS Score—Coordination of Care (visit) 18

Satisfaction 1g: CSS Score—Courtesy 19

Satisfaction 1h: CSS Score—Specialty Care Access 20

Satisfaction 2: Patients rating healthcare as very good or excellent 21

Utilization 1a: User status of patients 22

Utilization 1b: Priority status of patients 23

Utilization 2: Average number of VA primary care visits per patient 24

Utilization 4: Average number of VA specialty visits per patient 25

Utilization 6: VA bed days of care per patient 26

Utilization 7: Average number of VA hospital admissions per 1000 patients 27

Discussion 28

References 31

Acknowledgments 32

Appendix A 33

Appendix B 40

Appendix C 45

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INTRODUCTION

From 1995 to 1998, VHA approved more than 230 Community-Based Outpatient Clinics (CBOCs). By the end of FY 98, there were 139 CBOCs providing health care to veterans with the number of CBOCs per Veterans Integrated Service Network (VISN) ranging from 1 to 16. In order to learn about the characteristics and performance of the rapidly growing number of CBOCs, the Under Secretary for Health requested that the Health Services Research and Development Service (HSR&D), through its Management Decision and Research Center (MDRC) conduct a system-wide evaluation of CBOCs.

In response to the Under Secretary's request, the MDRC contracted with the HSR&D Center of Excellence at Seattle, in collaboration with the HSR&D Centers of Excellence in Little Rock and Minneapolis, to conduct the evaluations. A national CBOC Performance Evaluation Committee was convened to develop a set of CBOC characteristics and CBOC performance measures by which CBOCs would be categorized and evaluated. The committee recommended assessment of CBOC performance in six domains: Access to Care, Cost, Mental Health, Quality, Satisfaction, and Utilization.

Reported here are results for CBOC performance measures that are based on data from the Austin Automation Center and the National VA Outpatient Customer Service Standard Survey. All recommended performance measures are in Table 1 on the following page. The subset of measures included in this report are shown in bold. For each performance measure the Performance Evaluation Committee set a standard for the CBOCs. For most measures the standard states that CBOC performance should be at least equal to the performance of the associated Parent VA facility.

This is the third in a series of reports for this study. The first report detailed the CBOC characteristics and performance measures formulated by the committee.[3] The second report presented characteristics for each CBOC as reported through the VISNs.[4] The current report provides results for CBOC performance measures in each domain based on data from the Austin Automation Center and the National VA Outpatient Customer Service Standard Survey. Future reports will present additional measures from these domains based on other data sources including medical record review and cost assessment.

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[3] CBOC Evaluation Project. *Recommended CBOC Performance Measures and CBOC Characteristics*. HSR&D Management Decision and Research Center. Department of Veterans Affairs. November 1998.

[4] CBOC Evaluation Project. CBOC Characteristics. HSR&D Management Decision and Research Center. Department of Veterans Affairs. February 1999.

TABLE 1

Recommended CBOC performance measures*

Access
Access 1: Patients with travel distance 0-15,15-30,30-60, >60 miles from CBOC: among different priority groups, among current users, among current users by priority status, among current users who are historically underserved
Access 2: Patients seen within 20 minutes of scheduled appointment
Access 3: Average waiting time for follow-up after hospitalization or surgery
Access 4: Percent of veterans who were able to access medical care when they needed care
Access 5: Percent of service–connected veterans who do not use VHA services who live within 30 miles of CBOC, 30-60 miles of CBOC
Cost
Cost 1: Average cost per outpatient visit
Cost 2: Average cost of primary care per patient
Cost 3: Average total VA health care cost per patient
Cost 4: Change in fee-basis costs before and after activation of the CBOC
Mental Health
Mental Health 1: Patients assigned a mental health diagnosis
Mental Health 2: Average weighted outpatient workload per clinical mental health FTEE
Mental Health 3: Patients seen within 30 days after hospitalization for a mental health disorder
Quality
Quality 1: Patients reporting one provider or team in charge of care
Quality 2: Prevention Index
Quality 3: Chronic Disease Index
Satisfaction
Satisfaction 1: Average Customer Service Standard (CSS) score on the ambulatory care customer feedback survey
Satisfaction 2: Patients rating healthcare as very good or excellent
Satisfaction 3: Patients rating their VA healthcare encounter as equivalent to or better than what they would receive from any other healthcare provider
Utilization
Utilization 1: User status and priority status of patients
Utilization 2: Average number of VA primary care visits per patient
Utilization 3: Average weighted outpatient workload per clinical FTEE
Utilization 4: Average number of VA specialty visits per patient
Utilization 5: Patients who have: 1) seen a non-VA physician in the past 12 months, 2) been admitted to a non-VA hospital in the past 12 months
Utilization 6: VA bed days of care per patient
Utilization 7: Average number of VA hospital admissions per 1000 patients

***Bold font denotes performance measures that are included in this report**

METHODS

The methods used to conduct the analyses presented in this report are summarized in this section. A more complete description of the methods and performance measures is contained in Appendices A and B.

Definitions

Community-Based Outpatient Clinics (CBOC): CBOCs are defined as Community-Based Outpatient Clinics that successfully completed the congressional review process. Satellite outpatient clinics, outreach clinics, and community-based clinics are not included in this definition. A subset of the congressionally approved CBOCs also met the inclusion criteria for this study.

CBOC Patient: For the Austin Automation Center based performance measures, a CBOC patient is defined as any patient who had a least one visit to a CBOC between 4/1/98 and 9/30/98. Note that 14.1% of veterans defined as CBOC patients also had a stop at the primary care clinic of the Parent VAMC between 4/1/98 and 9/30/98. Among those patients with primary care stops at both the CBOC and the Parent VAMC, 21.9% had more primary care stops at the Parent VAMC than the CBOC. For the Patient Survey based performance measures, CBOC patients were randomly sampled from all veterans with primary care visits at a CBOC between 5/15/98 and 7/15/98.

Parent VA Facility: This report compares performance measures for CBOC patients and patients at the primary care clinics of the Parent VA facility. A Parent VA facility is defined as the VA facility affiliated with a CBOC as reported by each VISN on a survey conducted by the CBOC Performance Evaluation Project.

Parent VAMC Patient: For the Austin Automation Center based performance measures, a Parent VAMC patient is defined as any veteran who had a primary care stop at one of the Parent VA facilities, but who did not visit a CBOC between 4/1/98 and 9/30/98. For the Patient Survey based performance measures, Parent VAMC patients were randomly sampled from all veterans with primary care stops at one of the Parent VA facilities between 5/15/98 and 7/15/98.

Austin Automation Center Based Performance Measures

Eight of the CBOC performance measures are based on clinical and administrative data routinely collected by each VAMC and compiled in a nationwide database housed at the Austin Automation Center (AAC). These performance measures include one Access measure, two Mental Health measures, and five Utilization measures. To be included in the analysis of AAC data, a CBOC must have had a visit recorded in the AAC outpatient file before 4/1/98. Of the 139 CBOCs established by the end of FY98, 38 meet this inclusion criteria. Note that limiting the analysis to CBOCs that were operational for all

of FY98 resulted in too few CBOCs for meaningful analysis. Also note that 36 of these 38 CBOCs were also included in the analysis of the 1998 National Outpatient Customer Satisfaction Survey described below (see Appendix C). The 38 CBOCs were associated with 32 Parent VAMCs and were located in 16 different VISNs. Between 4/1/98 and 9/30/98, the 38 CBOCs treated 37,084 unique veterans and the primary care clinics of the 32 Parent VAMCs treated 318,368 unique veterans. The performance measures are calculated for these 355,452 veterans and reflect all patient encounters during the second half of FY98 (i.e., 4/1/98 to 9/30/98). Note that encounters in the first half of FY98 (10/1/97 to 3/30/98) could not be included in the analysis because too few CBOCs had recorded visits in the AAC files at the beginning of FY98.

To control for observable casemix differences between patients, multivariate statistical analyses were used to test the hypotheses that performance measures for CBOCs were different than performance measures for the primary care clinics of the Parent VAMCs. In addition to testing the hypotheses in aggregate, the hypotheses were also tested separately for each of the 16 VISNs in which the sample CBOCs were located. Observable casemix factors included age, gender, marital status, ethnicity, service connected (yes/no), percent service connected and prior inpatient and outpatient VA service use in FY97. Table 2 presents the casemix factors for the 37,084 CBOC patients and the 318,368 Parent VAMC primary care patients. Because of the large sample sizes, the differences between CBOC patients and Parent VAMC patients were statistically significant across all casemix factors, although most differences were not substantial.

TABLE 2

Patient casemix for CBOCs and the Parent VAMC primary care clinics

Casemix Factor	**CBOC Patients** (mean/percent)	**Parent VAMC Patients** (mean/percent)
Age	62.9 years	60.0 years
Female Gender	4.2%	6.4%
Caucasian	52.5%	51.0%
African American	6.2%	14.3%
Hispanic	2.3%	2.7%
Unknown Ethnicity	38.8%	31.7%
Married	62.3%	52.3%
Service Connected	37.2%	41.2%
Percent Service Connected	12.9 percent	15.2 percent
FY97 Outpatient Visits	5.75 stops	12.6 visits
FY97 Inpatient Admissions	0.1 admits	0.24 admits
	n=37,084	n=318,368

For the sub-sample of 37,084 CBOC patients, multivariate statistical analyses were also used to determine whether CBOC characteristics were correlated with the performance measures. Specifically, the following statistical comparisons were made: 1) VA-staffed versus Contract CBOCs, 2) Rural versus Urban CBOCs and 3) CBOCs established in FY98 (New) versus CBOCs established in FY97, FY96 or FY95 (Old). CBOCs were classified as "New" or "Old" based upon the date patients were first seen in a CBOC according to the VISN survey administered by the CBOC Performance Evaluation Project. Table 3 presents the casemix factors for the 31,128 patients in VA staffed CBOCs and the 5,956 patients at Contract CBOCs. Compared to Contract CBOC patients, VA staffed CBOC patients were significantly ($p<0.01$) older, were significantly less likely to be of unknown ethnicity, significantly less likely to be service connected and had significantly fewer outpatient visits in FY97.

TABLE 3

Patient casemix of VA Staff CBOCs and Contract CBOCs

Casemix Factor	VA Staffed CBOCs (mean/percent)	Contract CBOCs (mean/percent)
Age	62.9 years	61.8 years
Female Gender	4.3%	3.7%
Caucasian	55.1%	38.8%
African American	6.2%	6.2%
Hispanic	2.4%	2.2%
Unknown Ethnicity	36.2%	52.7%
Married	62.2%	62.7%
Service Connected	36.9%	38.8%
Percent Service Connected	12.9 percent	13.1 percent
FY97 Visits	5.9 visits	4.9 visits
FY97 Admissions	0.1 admits	0.1 admits
	n=31,128	n=5,956

Patient Survey Based Performance Measures

This report includes four CBOC performance measures that are based on patient survey data: one Access measure, one Quality measure, and two Satisfaction measures. One of these measures (Satisfaction 1) includes several subcomponents that are reported individually.

The source of patient survey data used in this report is the 1998 VA National Outpatient Customer Satisfaction Survey administered by the VHA National Performance Data Resource Center (the NPDRC was formerly the National Customer Feedback Center). CBOCs that were included in the analysis of survey-based performance measures met the following two criteria: the CBOC 1) was sampled as an individual station for the 1998 NPDRC Outpatient Survey, and 2) was actively providing care by 4/1/98 according to the CBOC Characteristics Report of the CBOC Evaluation Project. Forty-three CBOCs met these criteria. Surveys were collected by NPDRC from 4,840 patients at those CBOCs. These 43 CBOCs were associated with 36 Parent VAMCs which had 4,159 patients represented in the 1998 NPDRC survey.

Multivariate regression methods were used to adjust the survey-based measures for facility casemix differences. As with the AAC-based measures, CBOCs were compared to Parent VAMCs in a single aggregate comparison and in separate within-VISN comparisons. Separate multivariate analyses compared VA-staffed to contract CBOCs, rural to urban CBOCs, and newer to older CBOCs as defined above.

Limitations

The methods used for this report are subject to some important limitations. Perhaps most importantly, casemix differences between CBOCs and Parent VAMCs may exist that are not adequately accounted for by the casemix adjustment methods used. It is also important to note that only six months of data were available to calculate the AAC-based measures and that some CBOCs were only open a short period of time before the evaluation period began. In addition, data on relatively few contract CBOCs were available for this report.

RESULTS FOR PERFORMANCE MEASURES

There are 20 performance measures or measure components presented on the following pages. Each measure is on a separate page. There are three figures on each page for each of the measures:

- CBOC vs. Parent VAMC – The figure on the upper left is an comparison between all CBOCs and all associated Parent VA facilities.
- Comparison of CBOC Characteristics - The figure on the upper right presents the findings of separate multivariate analyses comparing VA-staffed to contract CBOCs, rural to urban CBOCs, and CBOCs established in FY98 (new) versus CBOCs established in FY97, FY 96 or FY95 (old).
- CBOC *vs*. Parent VAMC, by VISN - The bottom figure is a within-VISN comparison between CBOCs in the VISN and the associated Parent VA facilities. Several VISNs did not have CBOCs included in these analyses (see Methods for details).

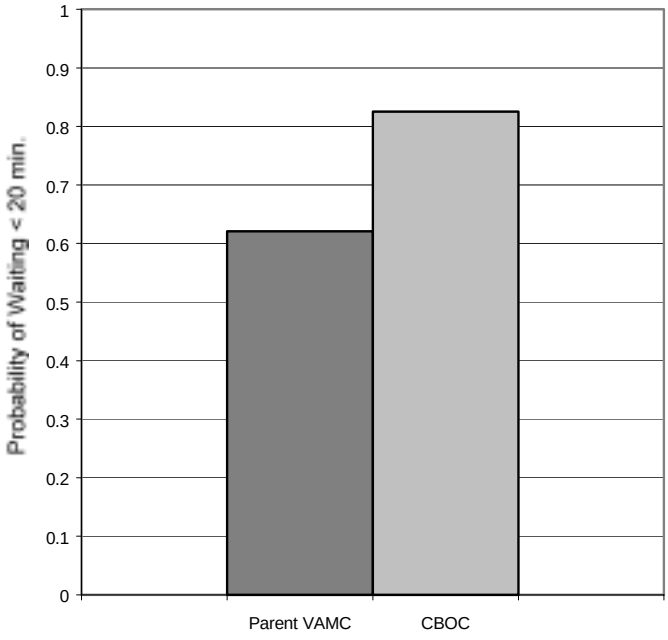
Please note that the performance measures reported at the VISN level are based on a relatively small number of CBOCs (and in some cases only one). Therefore, the performance measures reported for each VISN should be interpreted with some caution. It is also important to note that the VISN level analyses were designed to compare the performance measures of CBOCs and Parent VAMCs within each VISN, and are not appropriate for comparing performance measures across VISNs.

Throughout the results section, we report whether performance measures differed significantly across treatment locations (e.g., CBOC versus Parent VAMC). The significance of the difference is purely statistical and does not necessarily indicate whether the difference in the performance measures is clinically or policy relevant. The statistical significance simply reflects whether or not the impact of treatment location was different from zero, controlling for differences in patient characteristics between the treatment locations.

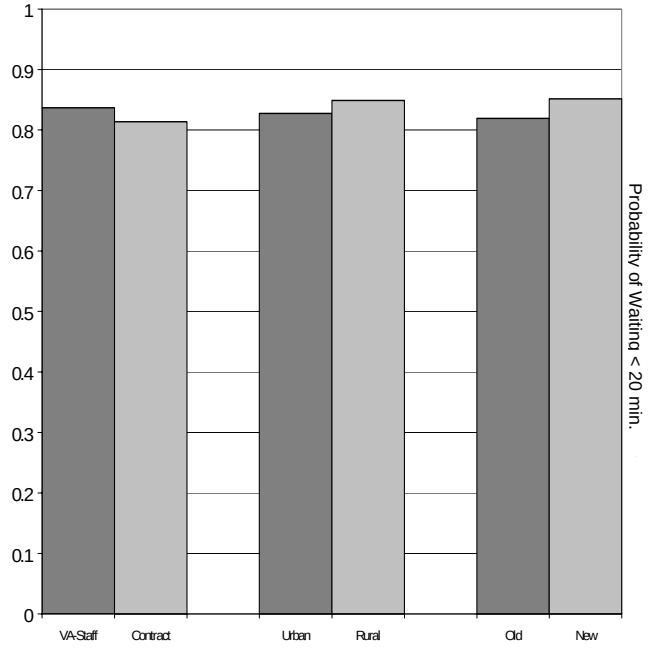
To help readers determine whether statistically significant differences are clinically or policy relevant, the performance measures are also reported graphically. The graphic comparisons show a predicted value for a typical veteran (instead of simply averaging across actual veterans) in order to adjust the comparisons for potential differences in patient casemix across locations. For example, the chart labeled "CBOC vs. Parent VAMC" for performance measure Access 2 represents the predicted probability that a typical veteran would be seen within 20 minutes of their scheduled appointment if treated at the two locations. Because the charts represent the predicted value of the performance measure for a typical veteran and not averages across actual veterans, the performance measures in this report should not be compared to results in other summary reports that are based on AAC or NPDRC data.

Access 2: Patients seen within 20 minutes of scheduled appointment

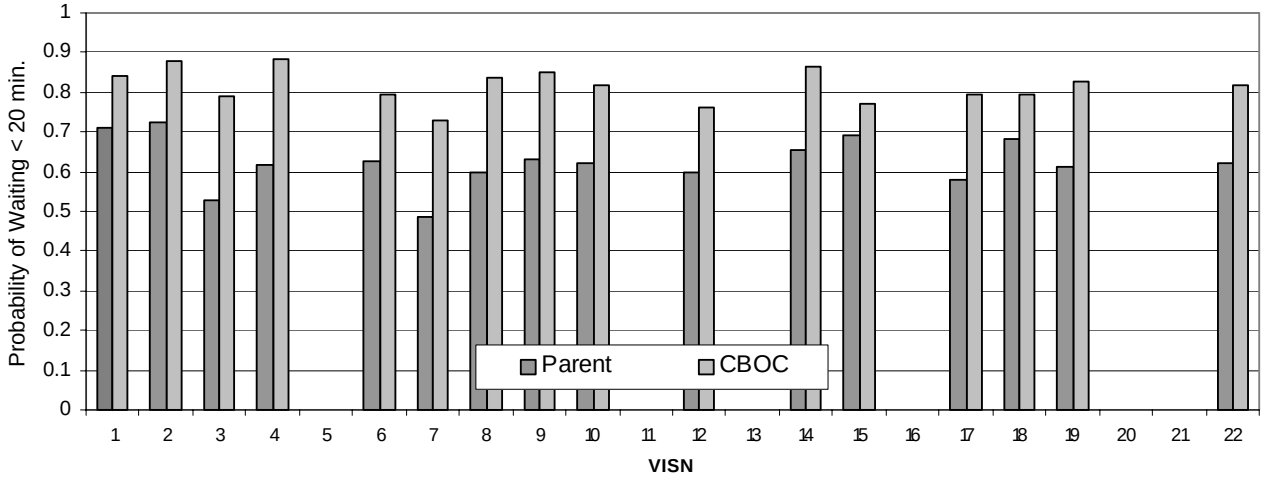
After adjustment for casemix, veterans at CBOCs were significantly more likely to report being seen within 20 minutes of their scheduled appointment compared to primary care patients at Parent VAMCs ($p < .001$). In 15 of 16 VISN-level analyses for this performance measure, CBOC patients were significantly more likely to report short appointment waiting times compared to Parent VAMC primary care patients ($p < .01$). Patients at newer CBOCs were slightly more likely to report a short waiting time ($p < .05$). Rural and urban CBOCs, and VA-staffed and Contract CBOCs did not differ.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

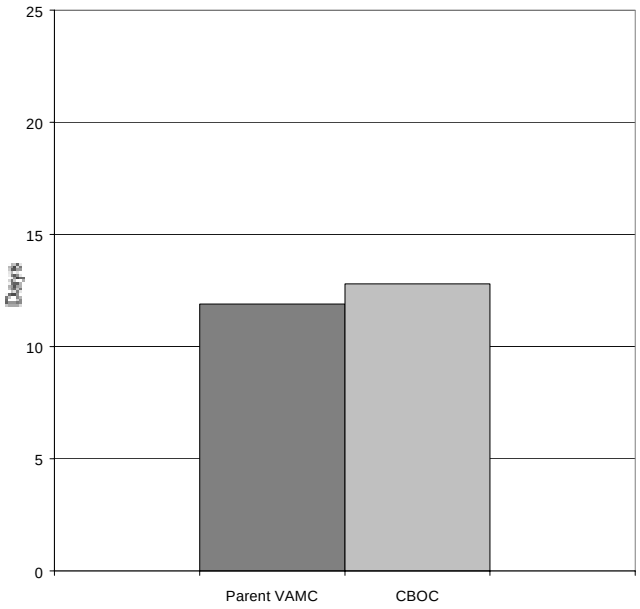


CBOC vs. Parent VAMC, by VISN

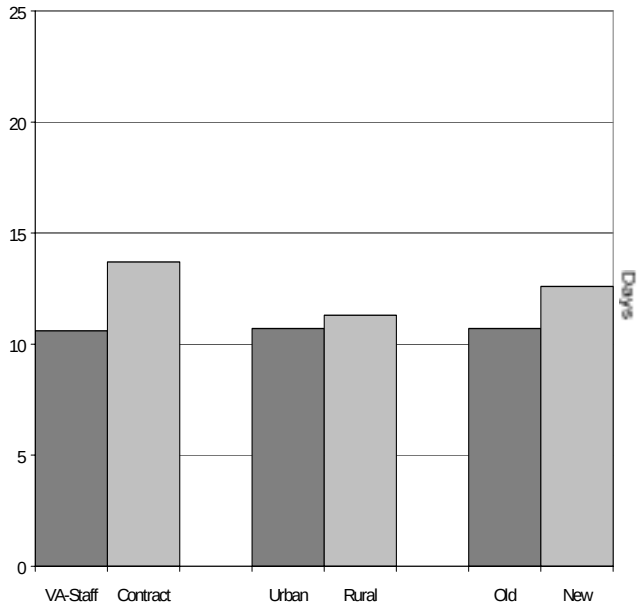
CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 3, 4, 6, 7, 8, 9, 10, 12, 14, 17, 18, 19, 22.

Access 3: Average waiting time for follow-up after hospitalization or surgery

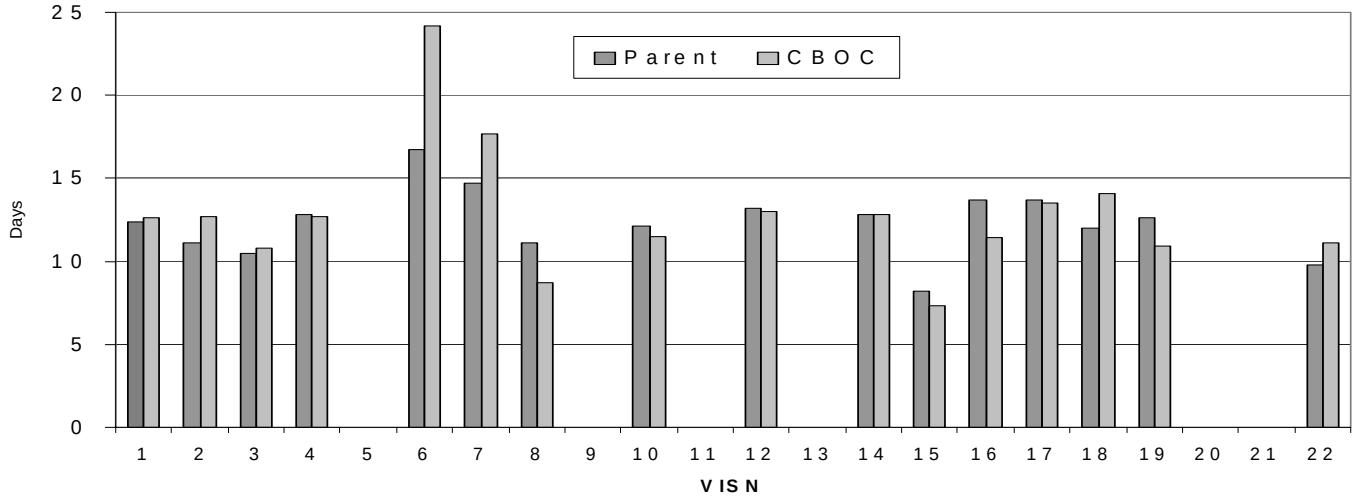
The CBOC versus Parent VAMC comparison for this performance measure is based on the sub-sample of the 30,441 patients hospitalized during the study period. There was no significant difference in waiting times between primary care patients at Parent VAMCs and CBOC patients. This finding was true in all VISNs ($p < 0.01$). To compare CBOC characteristics, the 1,514 CBOC patients who were hospitalized during the study period were analyzed. VA-staffed CBOCs had three fewer waiting days than Contract CBOCs ($p < 0.01$). Rural CBOCs were not significantly different than Urban CBOCs, and CBOCs established before FY98 were not significantly different than CBOCs established in FY98 ($p < 0.01$).



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

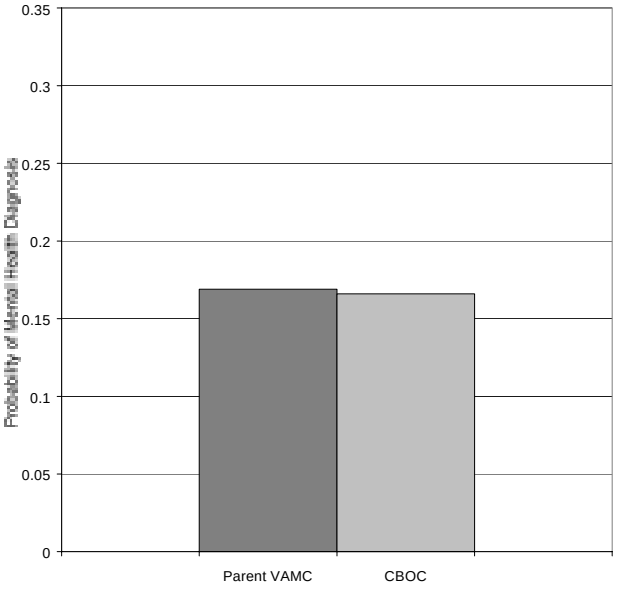


CBOC vs. Parent VAMC, by VISN

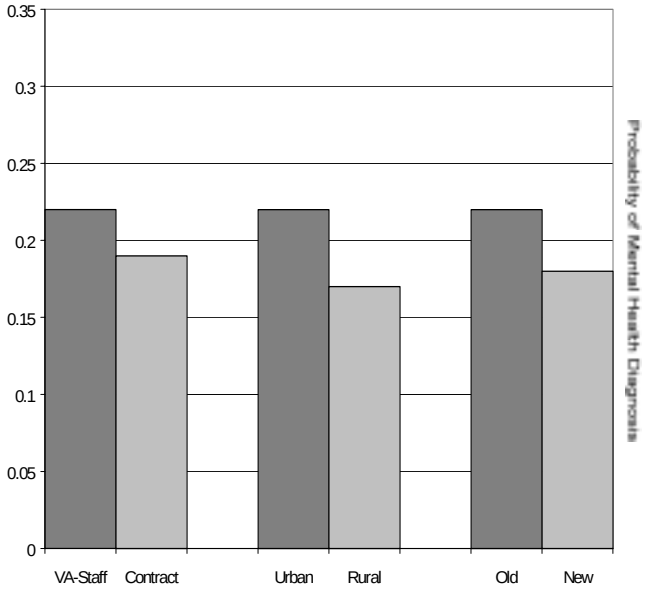
There were no significant differences between CBOCs and Parent VA facilities in any VISNs.

Mental Health 1: Patients assigned a mental health diagnosis

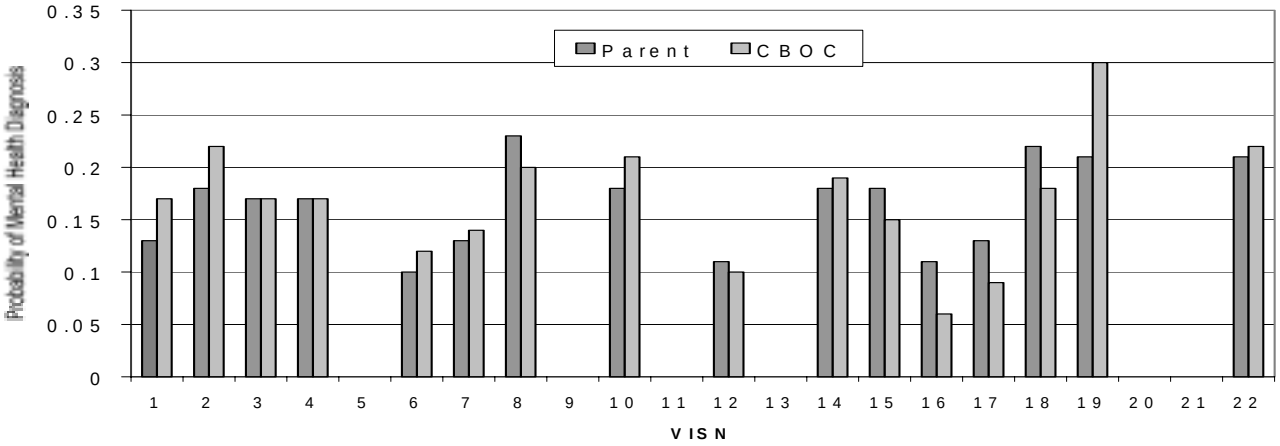
Controlling for casemix, primary care patients at the Parent VAMCs were neither more nor less likely to be assigned a mental health diagnosis. However, this finding was not consistent across VISNs. In four VISNs CBOCs were significantly more likely to assign a mental health diagnosis to patients and in four VISNs CBOCs were significantly less likely to assign a mental health diagnosis to patients, compared to Parent VAMCs. Patients at VA-staffed CBOCs were more likely to be assigned a mental health diagnosis than patients at Contract CBOCs ($p < 0.01$). Likewise, patients were more likely to be assigned a mental health diagnosis at both Urban CBOCs compared to Rural CBOCs ($p < 0.01$) and at CBOCs established before FY98 compared to CBOCs established in FY98 ($p < 0.01$).



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

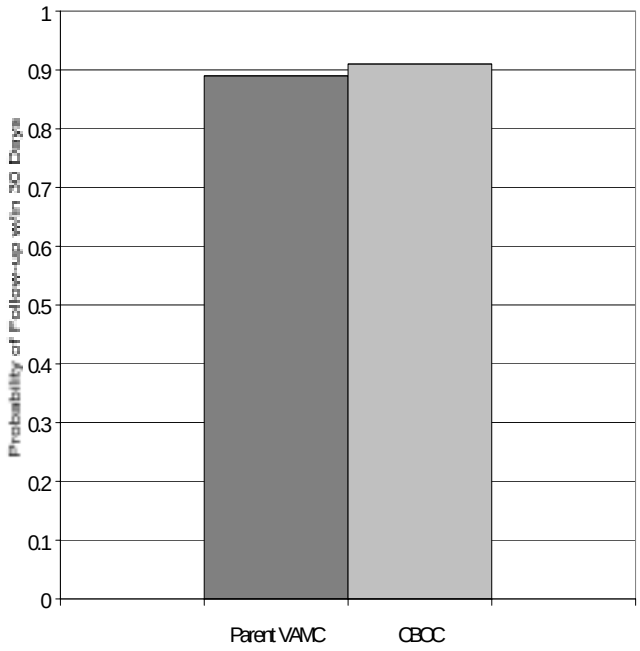


CBOC vs. Parent VAMC, by VISN

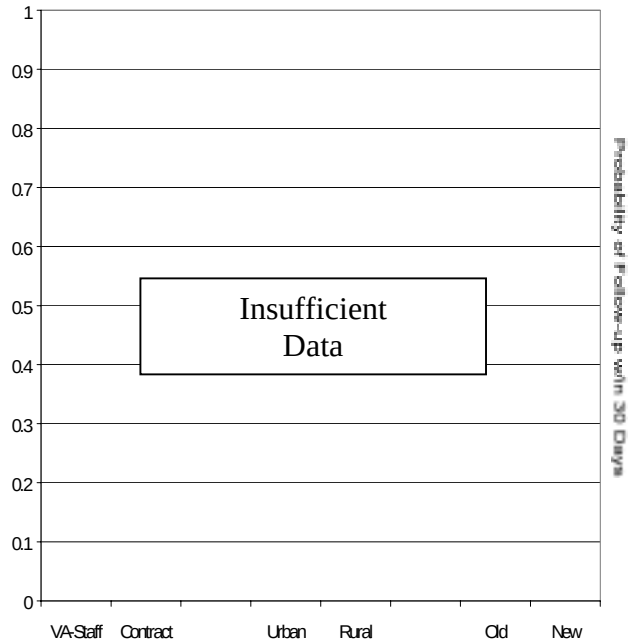
CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 8, 10, 15, 17, 18, 19.

Mental Health 3: Patients seen within 30 days after hospitalization for a mental health disorder

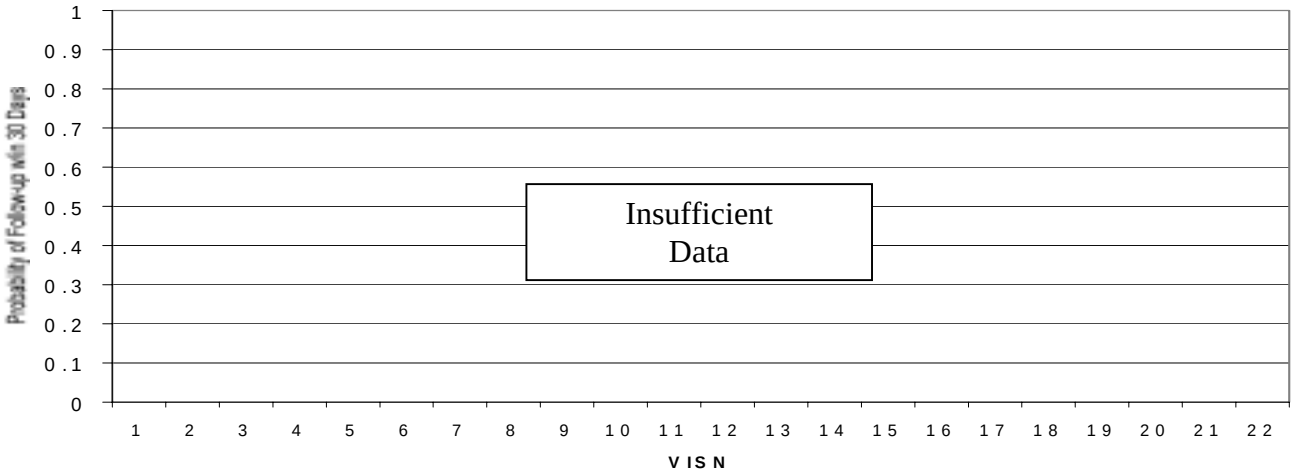
The CBOC versus Parent VAMC comparison for this performance measure is based on the sub-sample of 5,269 patients who were hospitalized for a mental health problem during the study period. The likelihood of follow-up mental health care within 30 days at Parent VAMCs was not significantly different than CBOCs, controlling for casemix. Because there were an insufficient number of patients discharged with a mental health diagnosis within each VISN, it was not possible to conduct a separate analysis for each VISN. Likewise, there were an insufficient number of CBOC patients with a mental health discharge to analyze the impact of CBOC characteristics.



CBOC vs. Parent VAMC



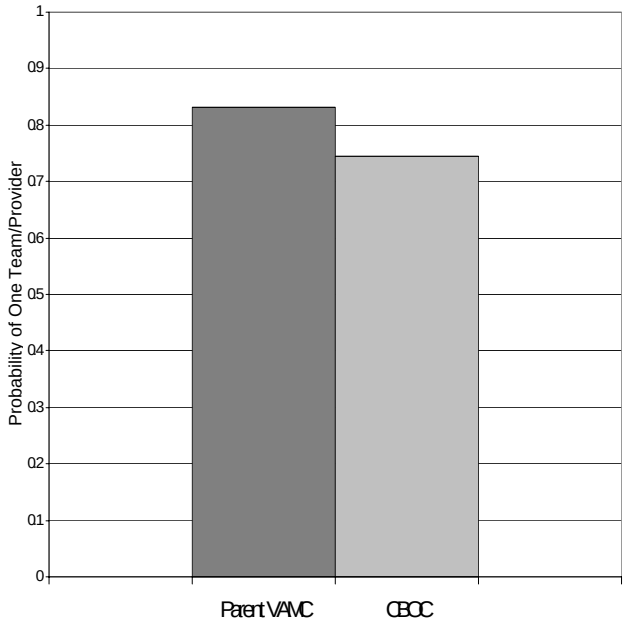
Comparison of CBOC Characteristics



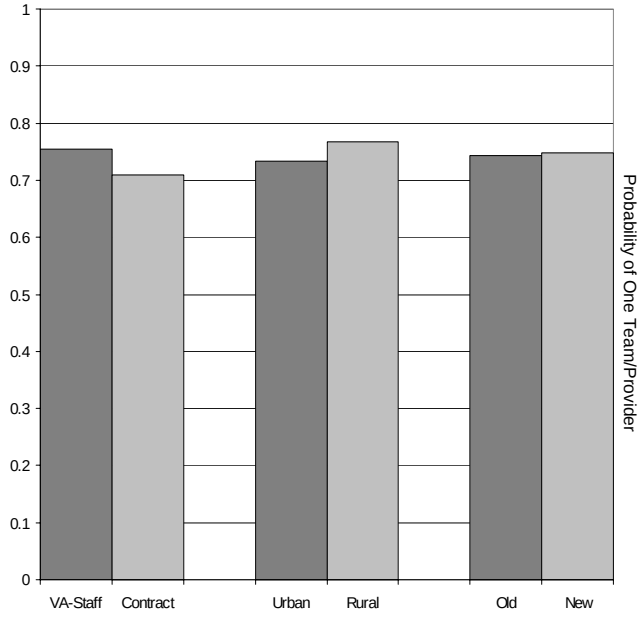
CBOC vs. Parent VAMC, by VISN

Quality 1: Patients reporting one provider or team in charge of care

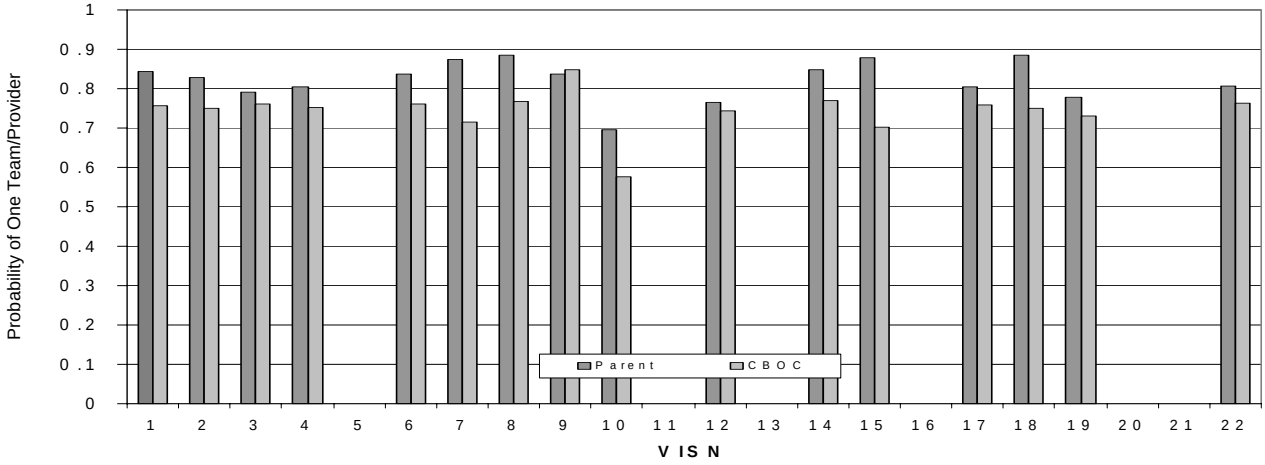
The overall CBOC versus Parent VAMC comparison for this performance measure demonstrated that Parent VAMC primary care patients were more likely to report that one provider or team was in charge of their care ($p < .001$). In five of 16 VISNs, Parent VAMC primary care patients were significantly more likely than CBOC patients to report a provider or team in charge of their care ($p < .01$). Differences between CBOC and Parent VAMC patients in the other 11 VISNs were not as large, but scores in most VISNs were in the direction of Parent VAMC patients more frequently reporting a single provider or team. Comparisons between old and new CBOCs, rural and urban CBOCs, and VA-staffed and Contract CBOCs did not reveal significant differences.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

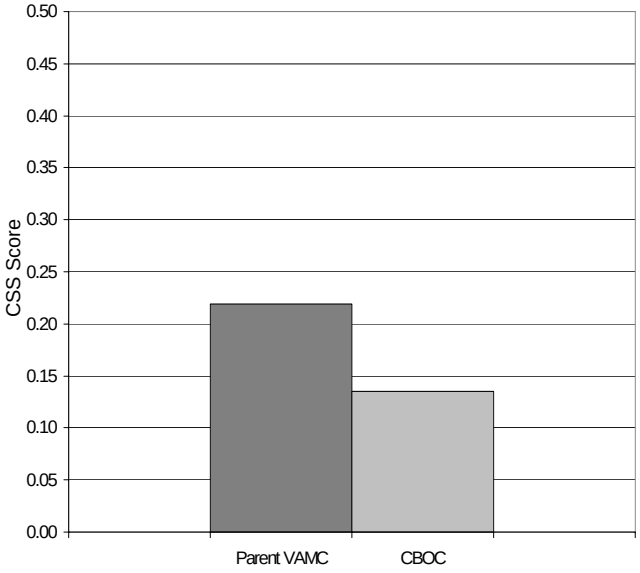


CBOC vs. Parent VAMC, by VISN

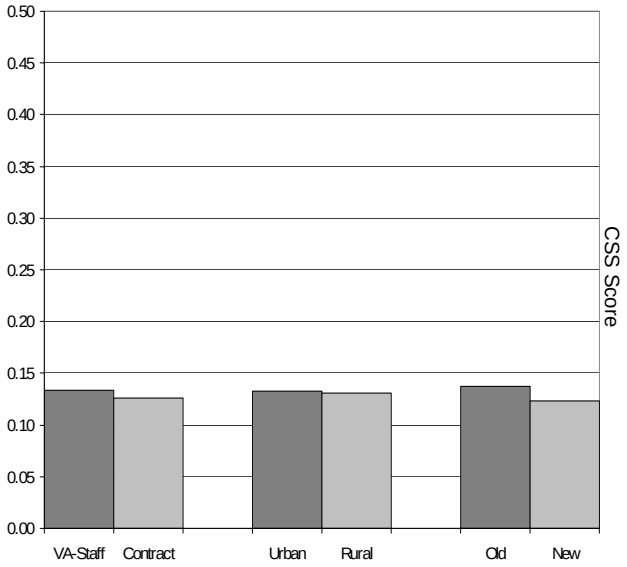
CBOCs were significantly different from the Parent VA facilities in VISNs: 7, 8, 10, 15, 18.

Satisfaction 1a: CSS Score—Access/Timeliness

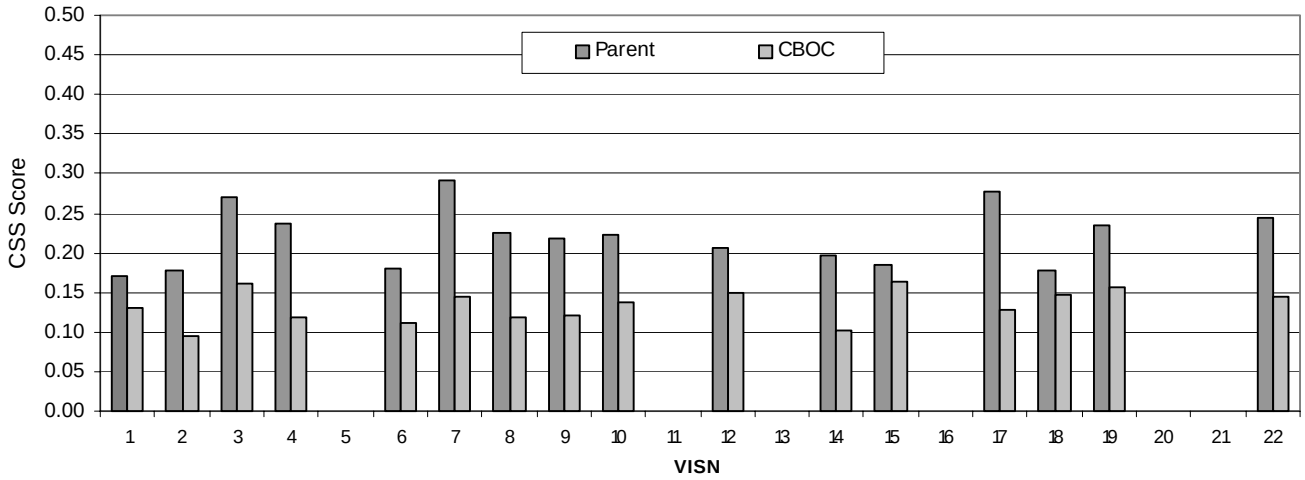
For this performance measure (and for Satisfaction 1b-h) a Customer Service Standard (CSS) score was computed which represents the proportion of unfavorable answers given for survey questions related to this CSS category. These scores have a range from 0-1 with lower scores representing fewer reported problems. For the Access/Timeliness CSS, CBOC patients reported fewer problems (CSS score=0.13) than patients in Parent VAMCs (CSS score=0.22) ($p < .001$). Significantly ($p < .01$) lower scores (fewer problems) were reported by CBOC patients in 11 of 16 VISNs. Scores did not significantly differ across old and new CBOCs, rural and urban CBOCs, or VA-staffed and Contract CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

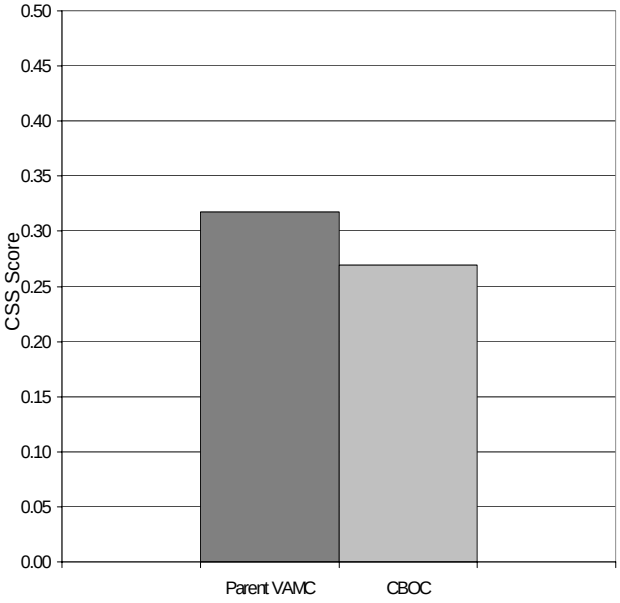


CBOC vs. Parent VAMC, by VISN

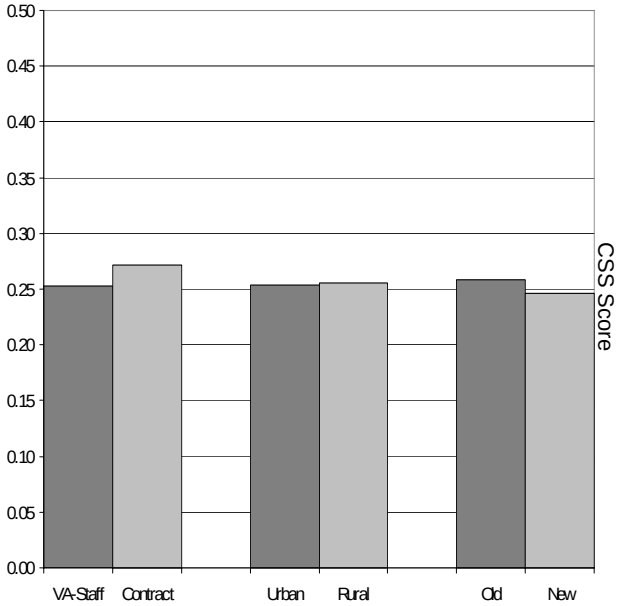
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISNs: 2, 3, 4, 7,8, 9, 10, 14, 17, 19, 22.

Satisfaction 1b: CSS Score—Patient Education/Information

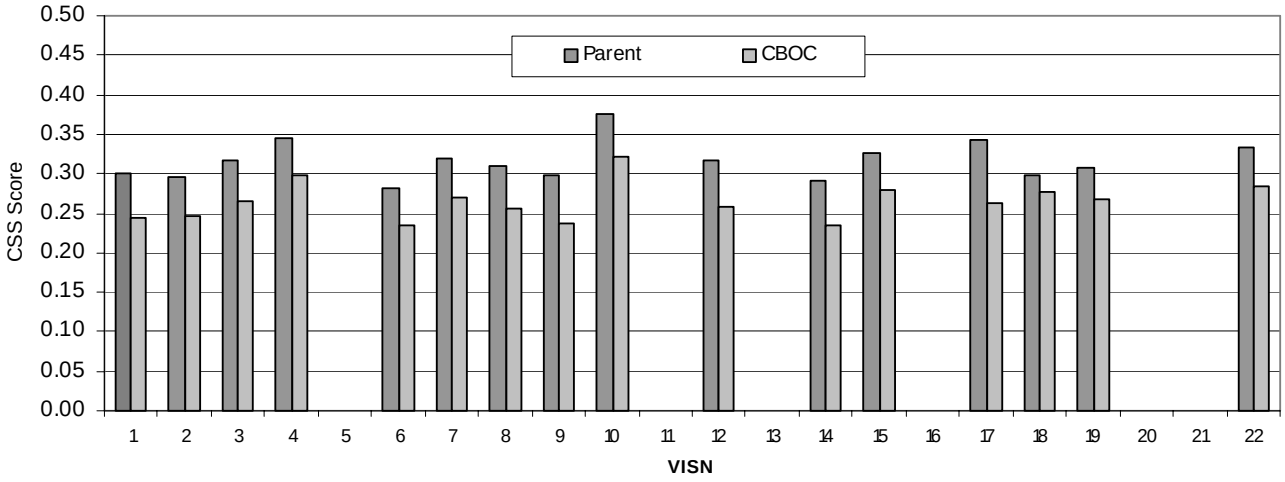
In the overall CBOC versus Parent VAMC comparison for the Patient Education/Information CSS, patients in CBOCS reported fewer problems than did primary care patients at Parent VAMCS ($p < .001$). In VISN-level CBOC versus Parent VAMC comparisons, CBOCs had lower CSS scores (fewer problems reported) than Parent VAMCs in most VISNs though the difference was significant in only one VISN. There were no significant differences observed for the Patient Education/Information CSS in comparisons of old and new CBOCs, urban and rural CBOCs, and VA-staffed and Contract CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

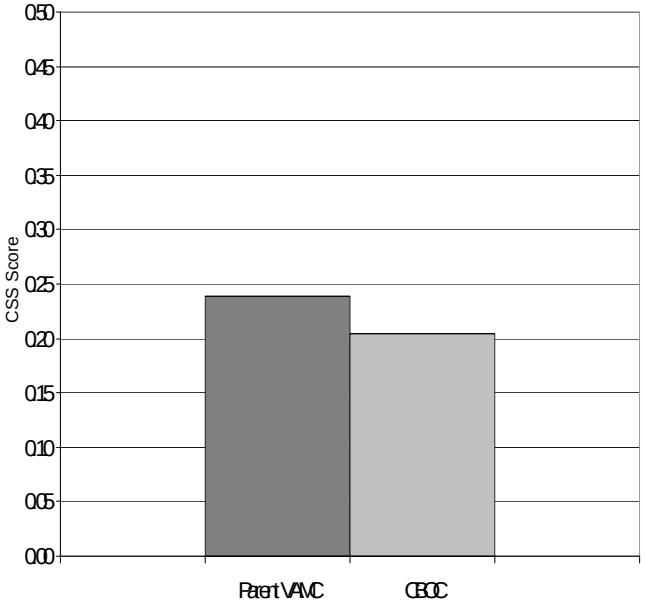


CBOC vs. Parent VAMC, by VISN

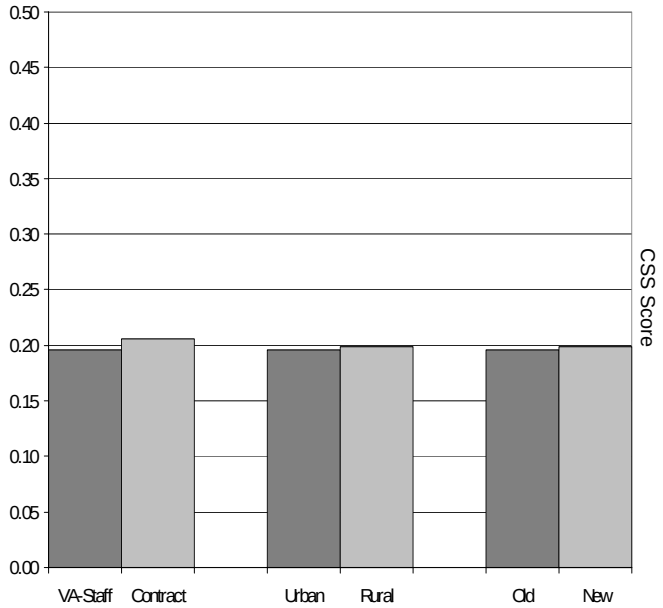
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISN 17.

Satisfaction 1c: CSS Score—Preferences

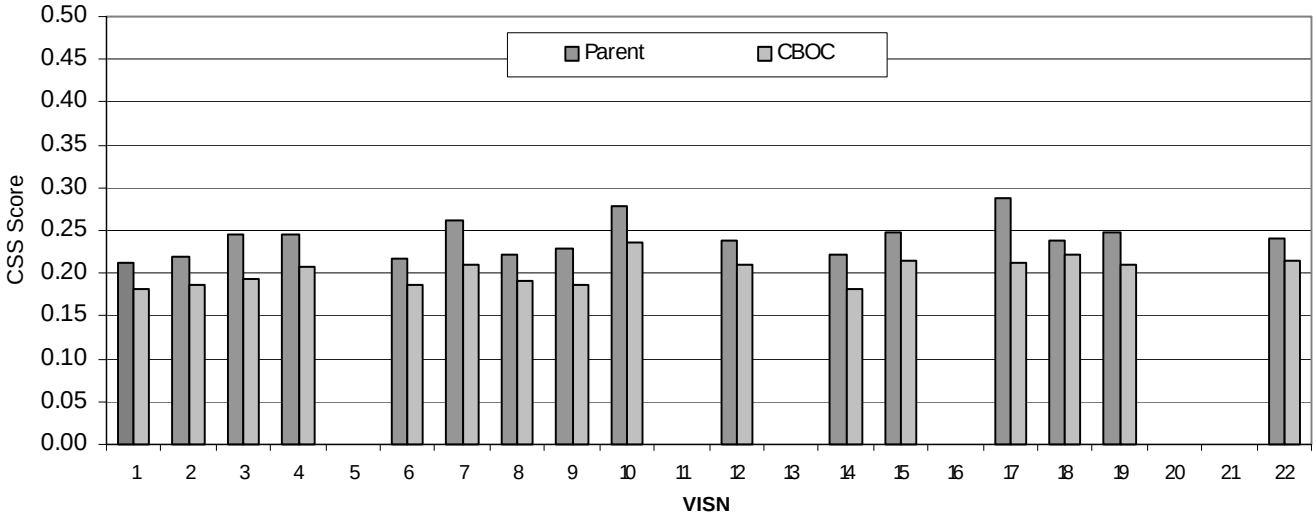
CBOC patients reported slightly fewer problems than Parent VAMC primary care patients for the Preferences CSS ($p < .001$). CSS scores were slightly lower for CBOCs in all VISNs, though these differences were significant in only two VISNs ($p < 01$). No differences were observed in comparisons of old and new CBOCs, urban and rural CBOCs, and VA-staffed and Contract CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

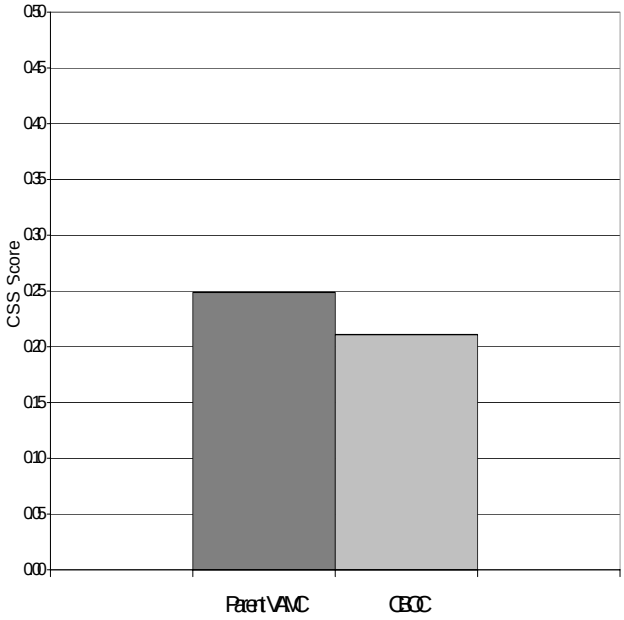


CBOC vs. Parent VAMC, by VISN

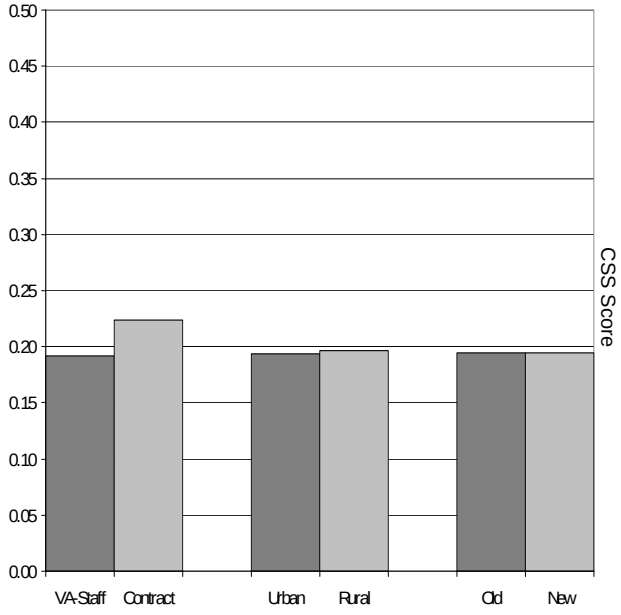
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISNs: 3, 17.

Satisfaction 1d: CSS Score—Emotional Support

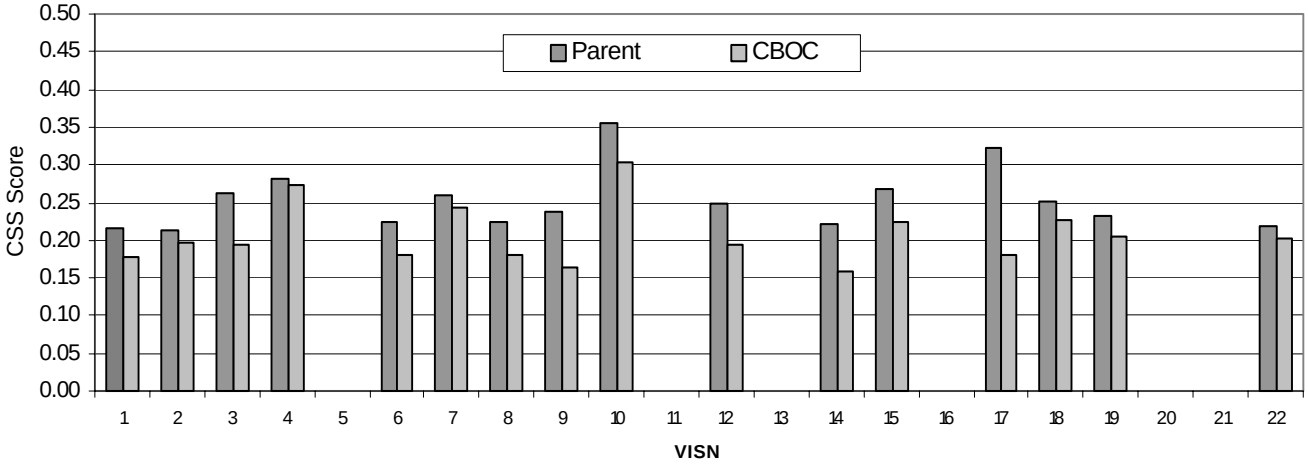
In the overall CBOC versus Parent VAMC comparison for the Emotional Support CSS, CBOC patients reported slightly fewer problems than Parent VAMC primary care patients ($p < .001$). CBOC scores for this CSS were slightly lower than Parent VAMC scores in most VISNs though significantly different in only one VISN. No differences were observed between old and new CBOCs or between urban and rural CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

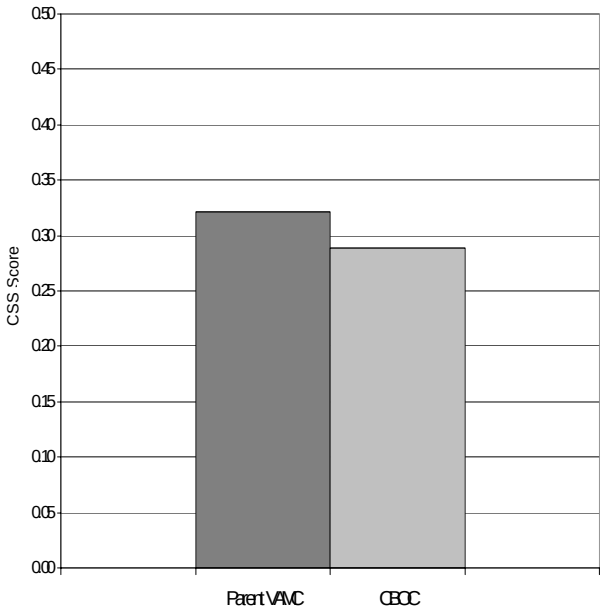


CBOC vs. Parent VAMC, by VISN

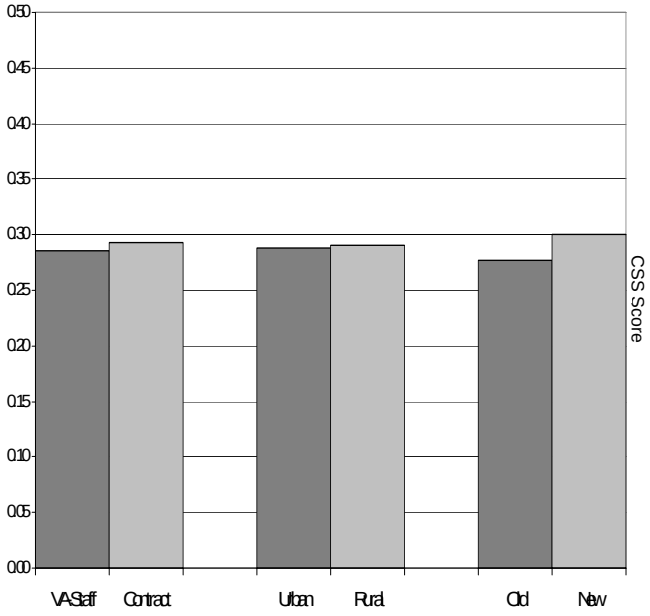
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISN 17.

Satisfaction 1e: CSS Score—Coordination of Care (overall)

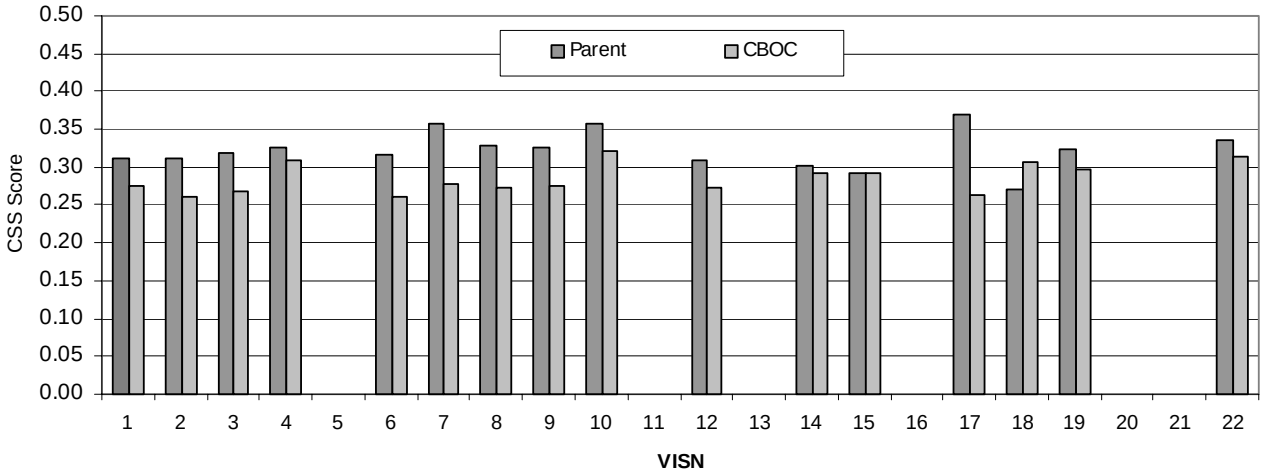
Slightly fewer problems with overall coordination of care were reported for CBOCs than for Parent VAMCs ($p < .01$). At the VISN level, CBOCs in one VISN had significantly ($p < .01$) though only slightly lower CSS scores than Parent VAMCs with no significant differences in the remaining VISNs. No significant differences were observed with regard to CBOC characteristics (old/new, urban/rural, VA-staffed/Contract).



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

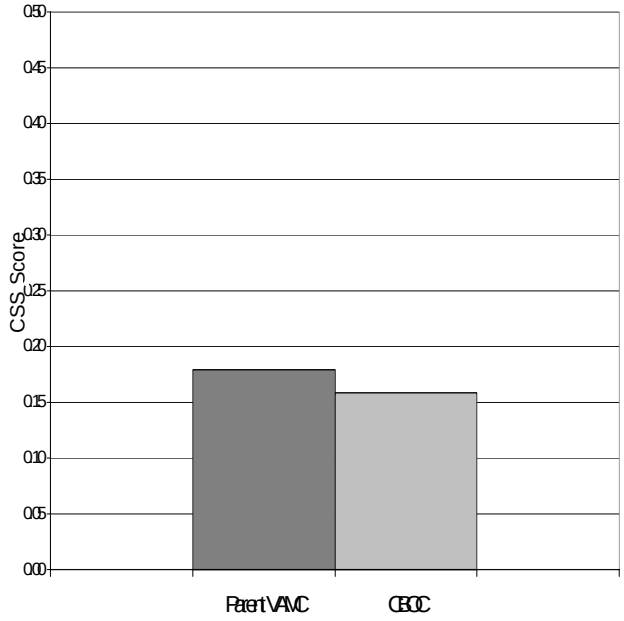


CBOC vs. Parent VAMC, by VISN

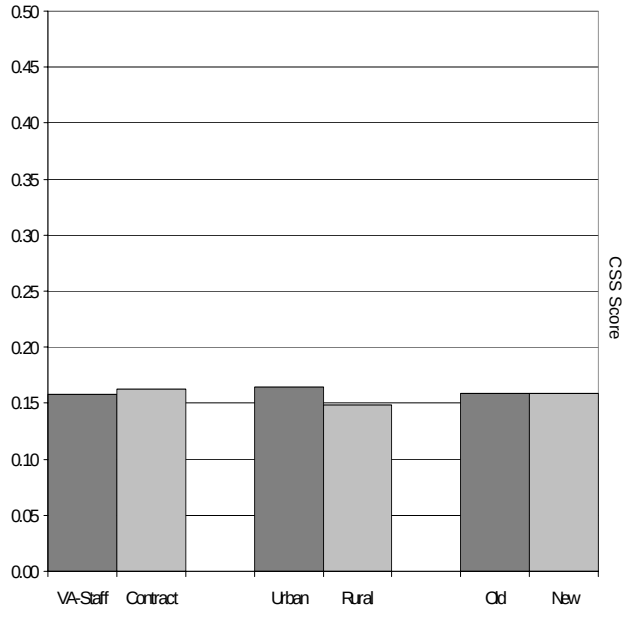
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISN 17.

Satisfaction 1f: CSS Score—Coordination of Care (visit)

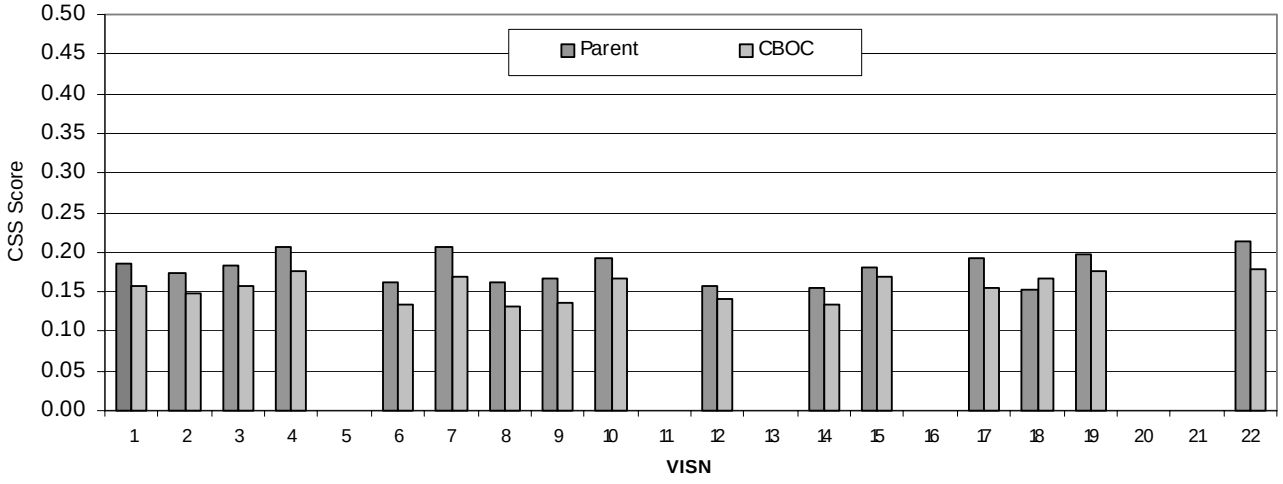
The CSS score for coordination of care for visits was slightly lower for CBOC patients than for Parent VAMC patients ($p < .01$). At the VISN level this CSS did not significantly ($p > .01$) differ between CBOCs and Parent VAMCs in any VISN though scores were generally in the direction of slightly better scores for CBOC patients. With regard to CBOC characteristics, no significant differences were observed.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

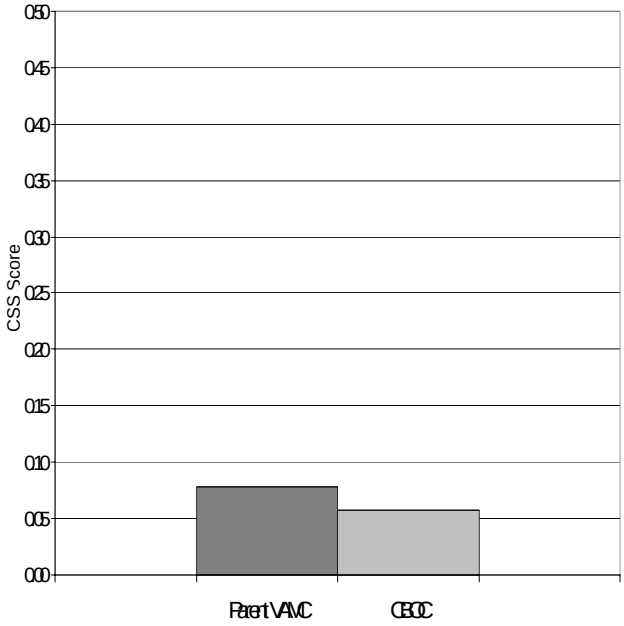


CBOC vs. Parent VAMC, by VISN

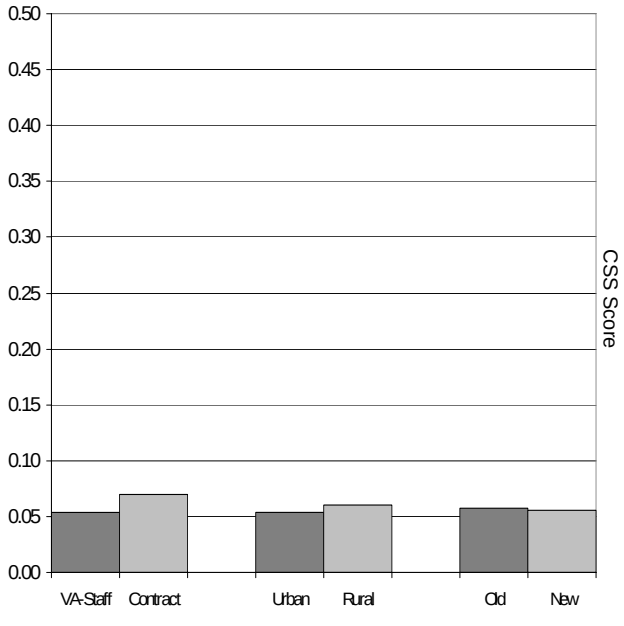
Higher CSS Scores denote more perceived problems with care.
CBOCs were not significantly different from Parent VA facilities in any VISN.

Satisfaction 1g: CSS Score—Courtesy

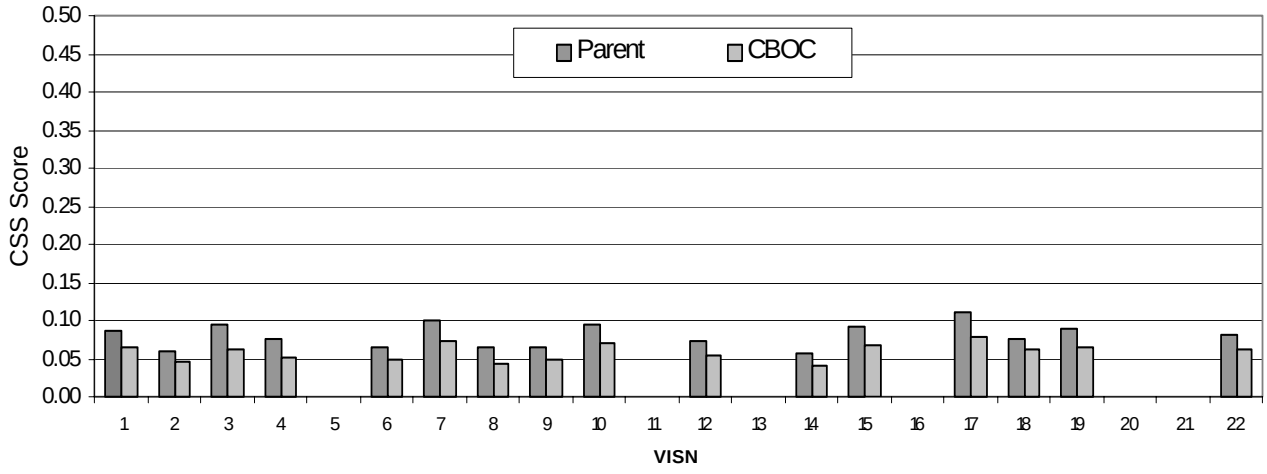
For the Courtesy CSS, slightly fewer problems were reported by CBOC patients than by Parent VAMC patients ($p < .01$). At the VISN level differences were significant ($p < .01$) for only one VISN though scores were generally slightly better for CBOCs. No significant differences were observed among old and new CBOCs, urban and rural CBOCs, or VA-staffed and Contract CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

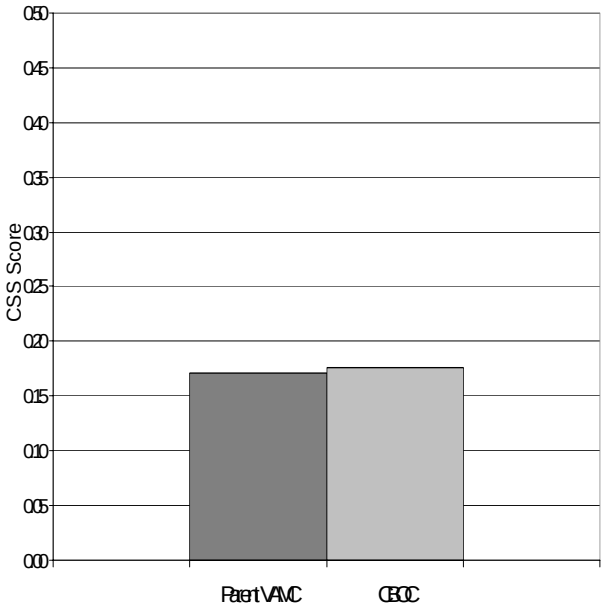


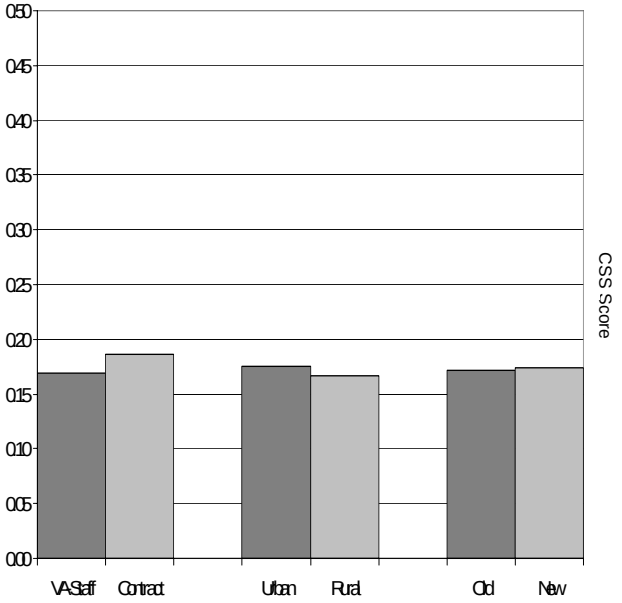
CBOC vs. Parent VAMC, by VISN

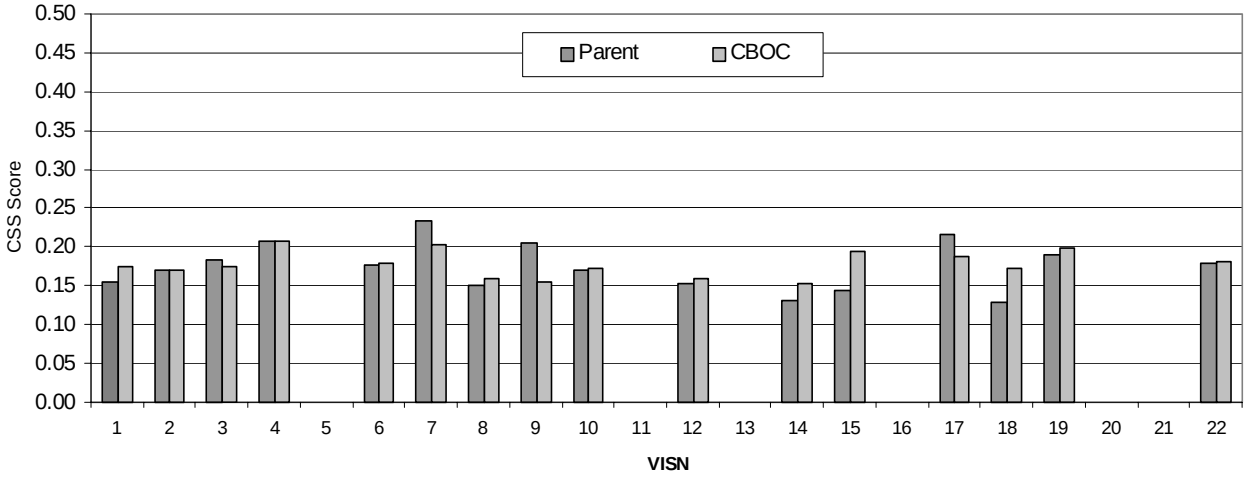
Higher CSS Scores denote more perceived problems with care.
CBOCs were significantly different from the Parent VA facilities in VISN 3.

Satisfaction 1h: CSS Score—Specialty Care Access

No overall difference was observed between CBOC and Parent VAMC patients for the Specialty Care Access CSS. This finding was consistent across VISNs; no significant differences for this CSS was observed in any of the 16 VISNs analyzed. CBOC characteristics also had no significant relationship to scores for this CSS.







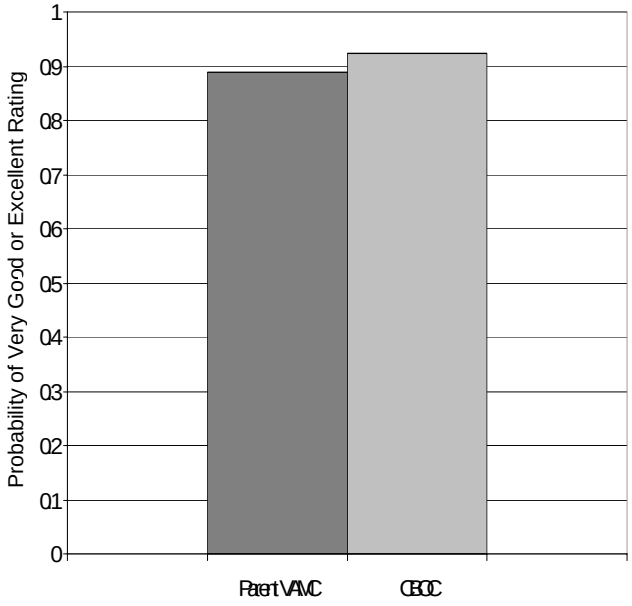
CBOC vs. Parent VAMC **Comparison of CBOC Characteristics**

CBOC vs. Parent VAMC, by VISN

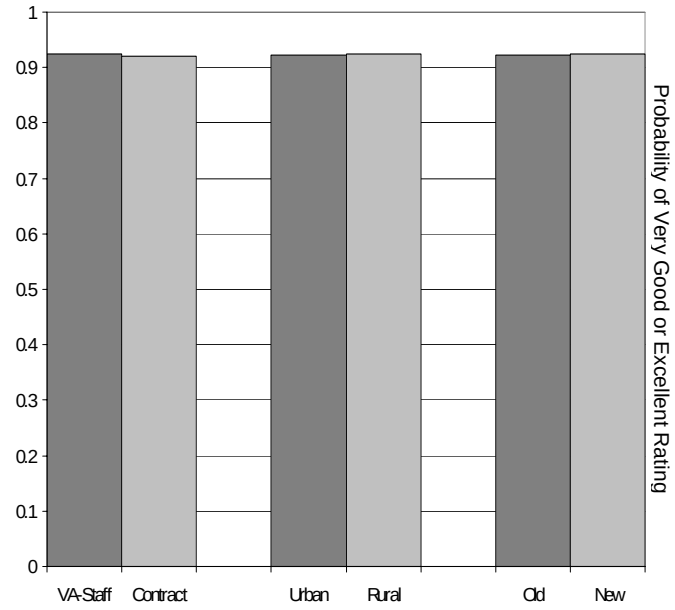
Higher CSS Scores denote more perceived problems with care.
CBOCs were not significantly different from Parent VA facilities in any VISN.

Satisfaction 2: Patients rating healthcare as very good or excellent

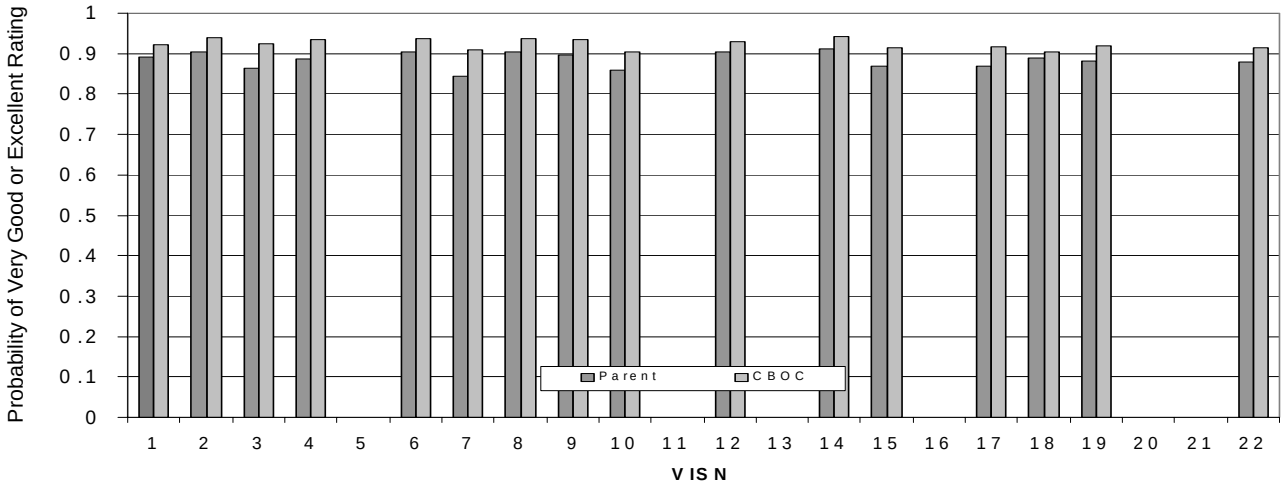
This performance measure examined the proportion of veterans rating their most recent clinic visit as either excellent or very good. In the overall CBOC versus Parent VAMC comparison, a slightly larger proportion of CBOC patients reported excellent or very good ratings ($p < .001$). A similar pattern was observed in most VISNs. In two VISNs the differences between CBOCs and Parent VAMCs were significant ($p < .01$). Scores on this performance measure were remarkably similar among old and new CBOCs, rural and urban CBOCs, and VA-staffed and Contract CBOCs.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

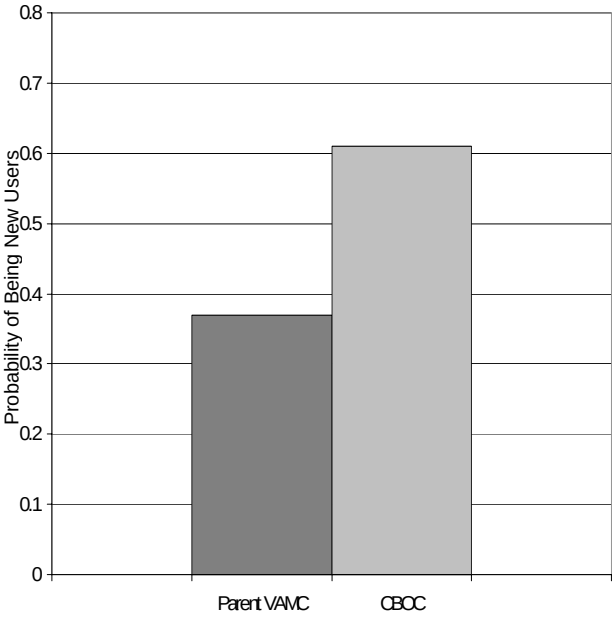


CBOC vs. Parent VAMC, by VISN

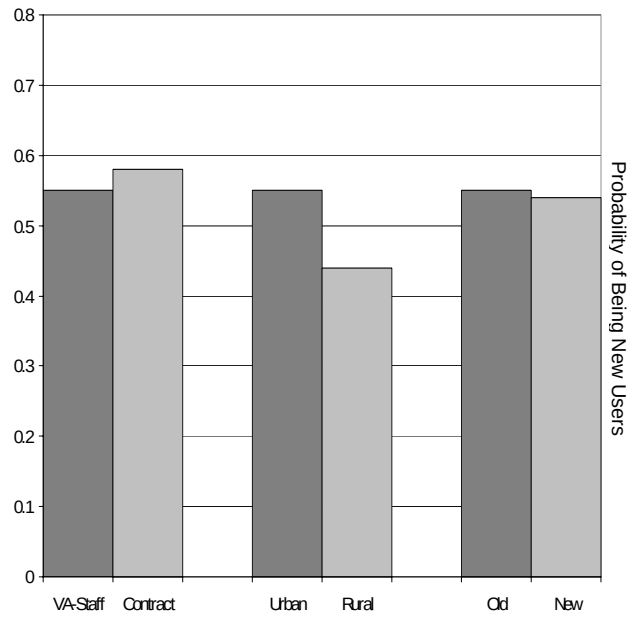
CBOCs were significantly different from the Parent VA facilities in VISNs: 3, 4.

Utilization 1a: User status of patients

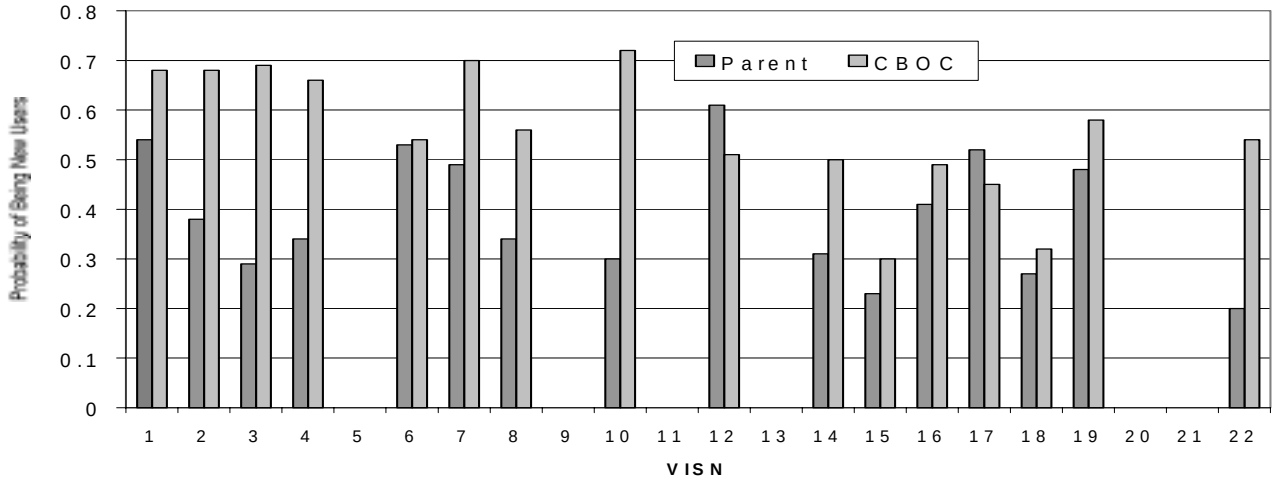
Controlling for casemix, patients at primary care clinics of the Parent VAMCs were less likely to be new users than CBOC patients ($p < 0.01$). This finding was fairly consistent across VISNs. In 12 of the 16 VISNs analyzed, patients at Parent VAMCs were significantly ($p < 0.01$) less likely to be new users than CBOC patients. Patients at VA-staffed CBOCs were significantly less likely to be new users than patients at Contract CBOCs ($p < 0.01$). Patients at Rural CBOCs were significantly less likely to be new users than patients at Urban CBOCs ($p < 0.01$). Patients at CBOCs established in FY98 were not significantly different than patients at CBOCs established prior FY98.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

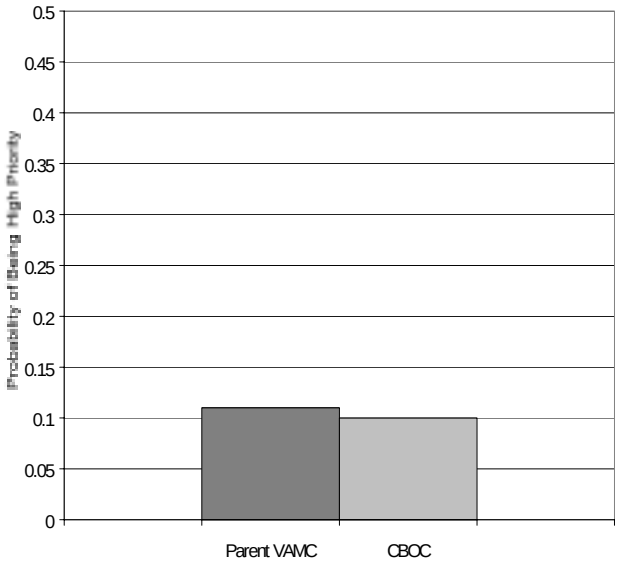


CBOC vs. Parent VAMC, by VISN

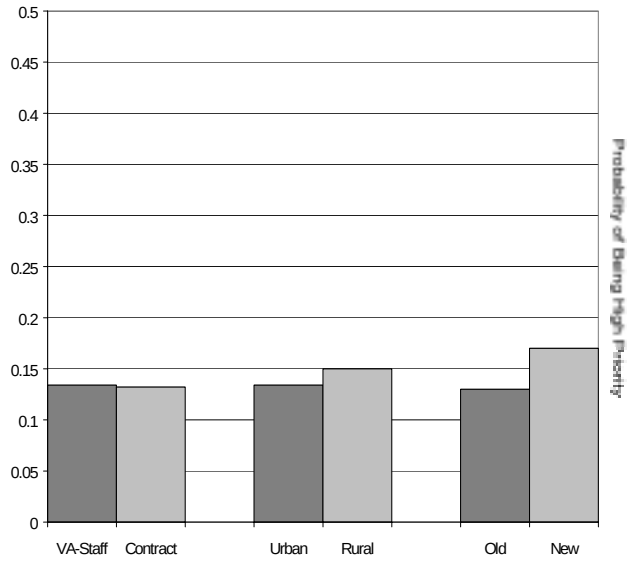
CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 3, 4, 7, 8, 10, 12, 14, 15, 18, 19, 22.

Utilization 1b: Priority status of patients

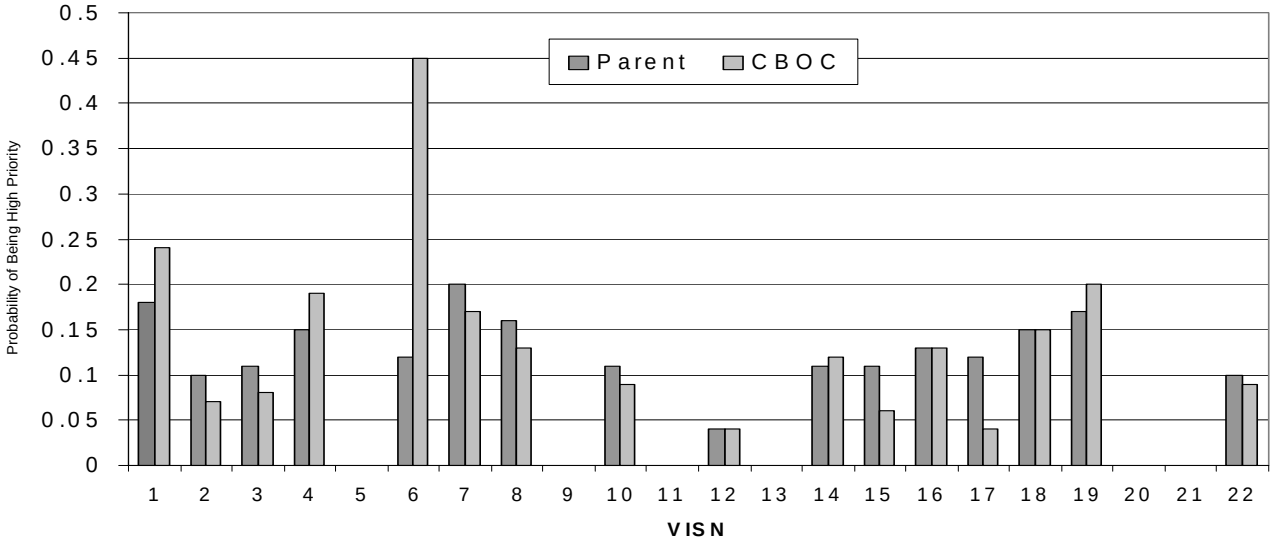
Primary care patients at Parent VAMCs were slightly more likely to be high priority veterans (priority level 1 or 2) than CBOC patients ($p < 0.01$). However, this finding was not consistent across VISNs. Patients at CBOCs were significantly more likely to be high priority in four of the VISNs and a significantly less likely to be high priority in seven VISNs. There was no significant difference between VA-staffed and Contract CBOCs. Patients at Rural CBOCs were significantly more likely to be high priority than patients at Urban CBOCs ($p < 0.01$). Patients at CBOCs established before FY98 were significantly less likely to be high priority veterans compared to patients at CBOCs established in FY98 ($p < 0.01$).



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

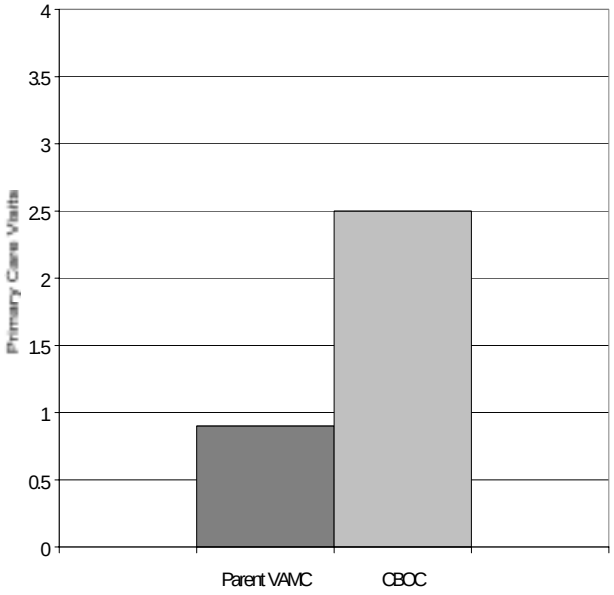


CBOC vs. Parent VAMC, by VISN

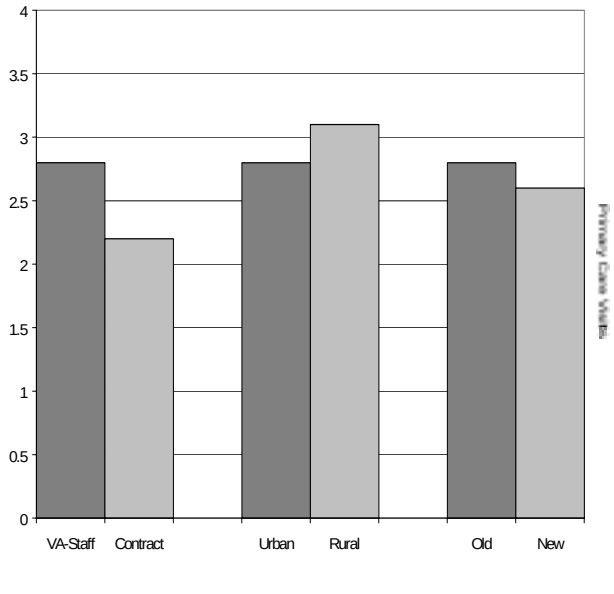
CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 3, 4, 6, 8, 10, 15, 17, 19, 22.

Utilization 2: Average number of VA primary care visits per patient

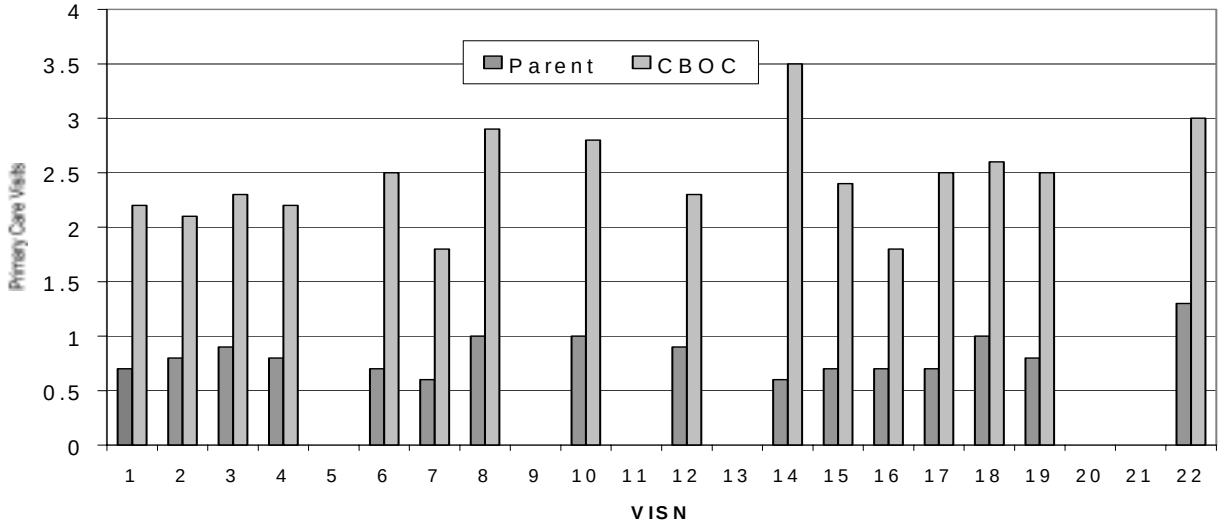
Controlling for casemix, primary care patients at the Parent VAMCs had 1.7 fewer primary care stops than CBOC patients ($p < 0.01$). This finding was consistent across all 16 VISNs, although the magnitude of the difference varied. Patients at VA-staffed CBOCs had about 0.5 more primary care stops than patients at Contract CBOCs ($p < 0.01$). Patients at Rural CBOCs had significantly more primary care stops than patients at Urban CBOCs ($p < 0.01$). Patients at CBOCs established before FY98 had significantly more primary care stops than patients at CBOCs established in FY98 ($P<0.01$).



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

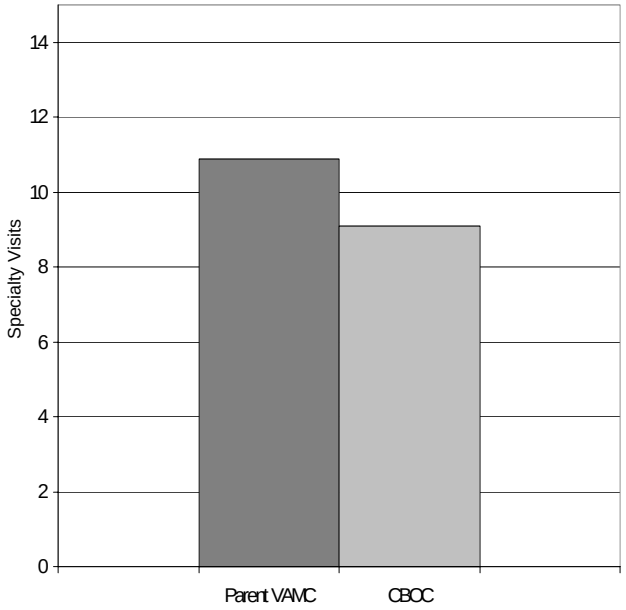


CBOC vs. Parent VAMC, by VISN

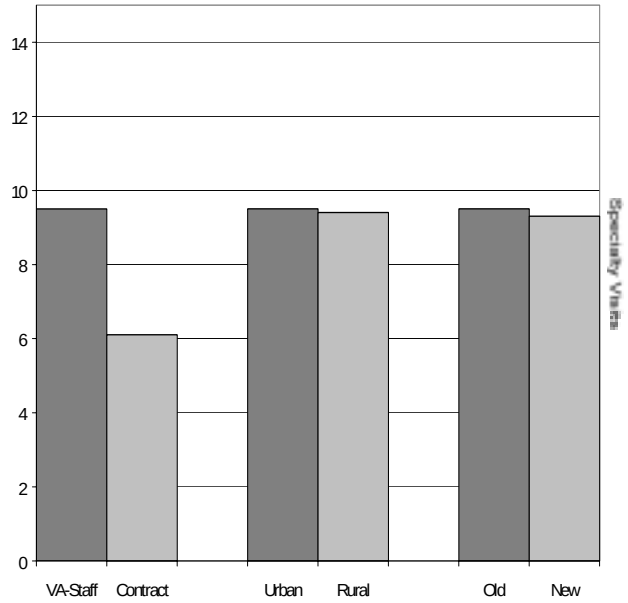
CBOCs were significantly different from the Parent VA facilities in all sixteen VISNs.

Utilization 4: Average number of VA specialty visits per patient

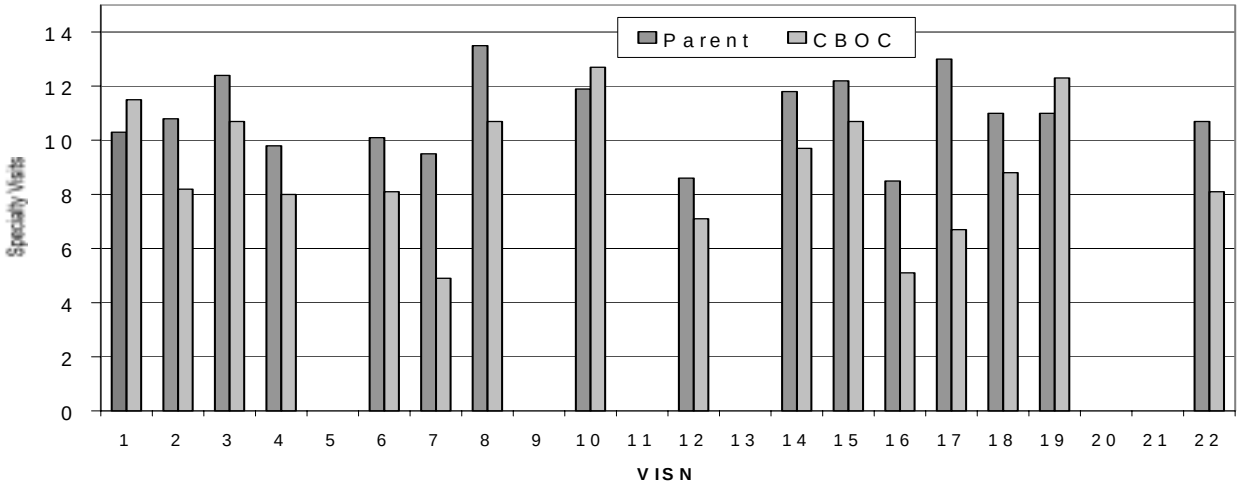
Controlling for casemix, primary care patients at the Parent VAMCs had 1.8 more specialty clinic stops than CBOC patients ($p < 0.01$). This finding was fairly consistent across VISNs. In 10 of the 16 VISNs analyzed, Parent VAMC patients had significantly more specialty clinic stops than CBOC patients ($p < 0.01$). Patients at VA-staffed CBOCs had 3.4 more specialty clinic stops than patients at Contract CBOCs ($p < 0.01$). Rural CBOCs did not differ significantly from Urban CBOCs. Likewise, CBOCs established before FY98 did not differ significantly from CBOCs established in FY98.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

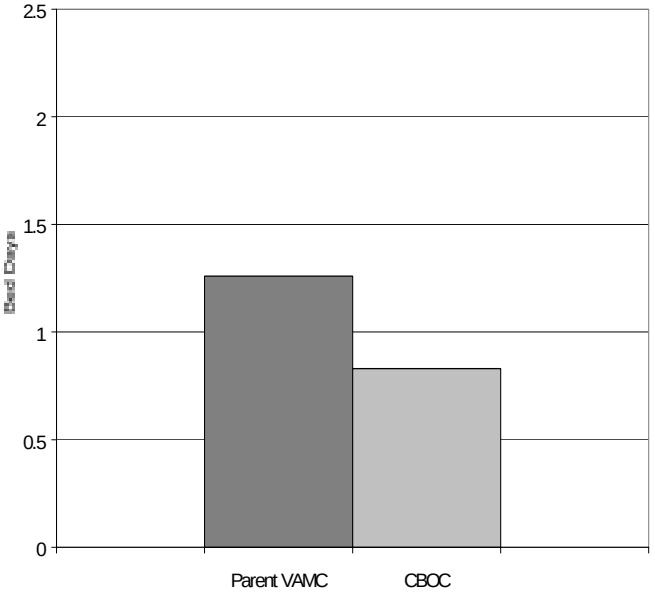


CBOC vs. Parent VAMC, by VISN

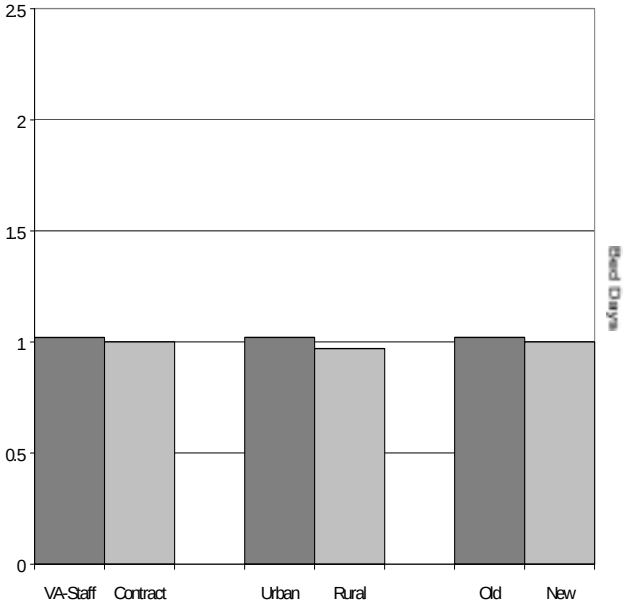
CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 3, 4, 7, 8, 14, 15, 16, 17, 18, 19, 22.

Utilization 6: VA bed days of care per patient

Controlling for casemix, primary care patients at the Parent VAMCs had 0.4 more inpatient days than CBOC patients. Overall this difference was not significant. However, in eight of the 16 VISNs analyzed, CBOC patients did have significantly fewer bed days of care than patients at the Parent VAMCs ($p < 0.01$). VA-staffed CBOCs did not differ significantly than Contract CBOCs. Rural CBOCs did not differ significantly from Urban CBOCs. Likewise, CBOCs established before FY98 did not differ significantly from CBOCs established in FY98.

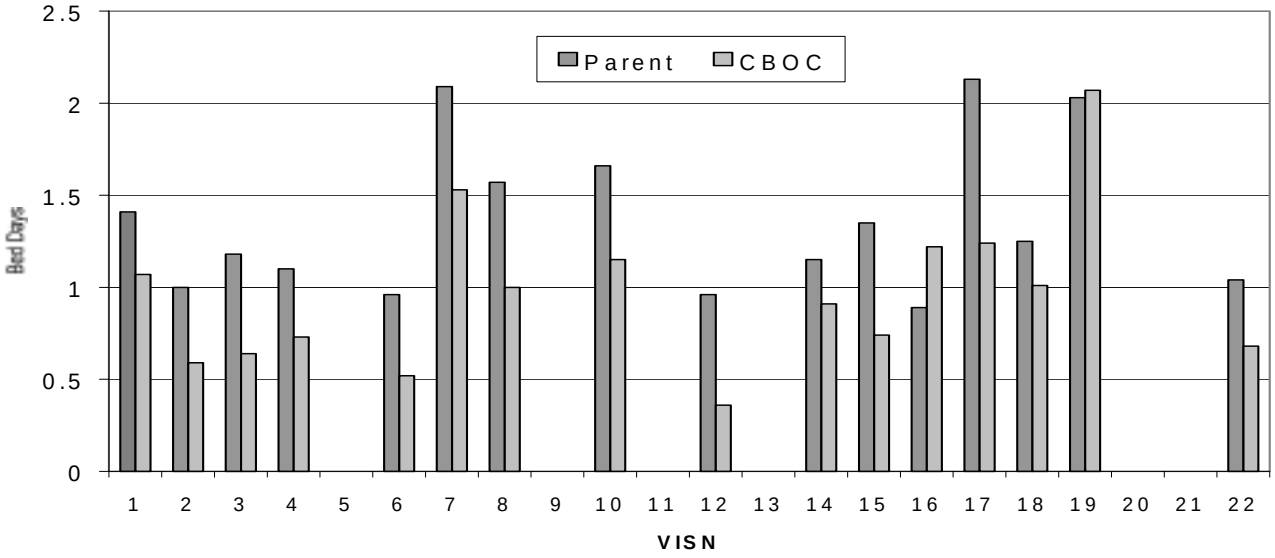


CBOC vs. Parent VAMC



Comparison of CBOC Characteristics

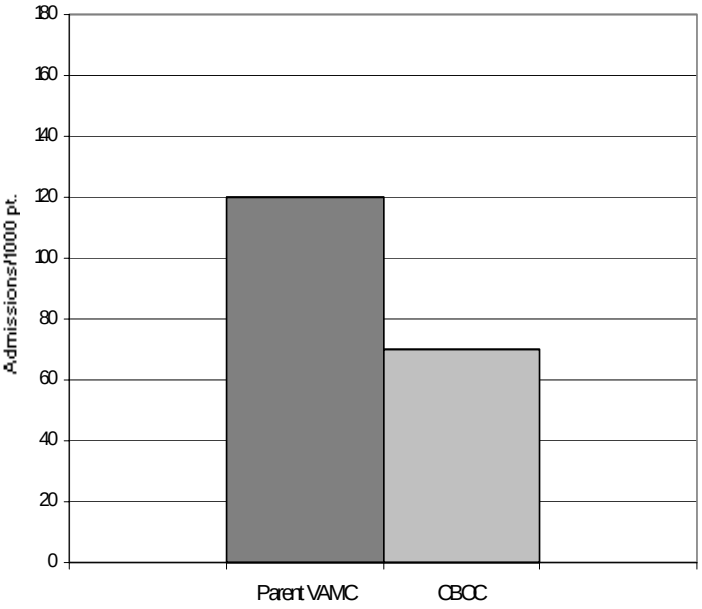
CBOC vs. Parent VAMC, by VISN



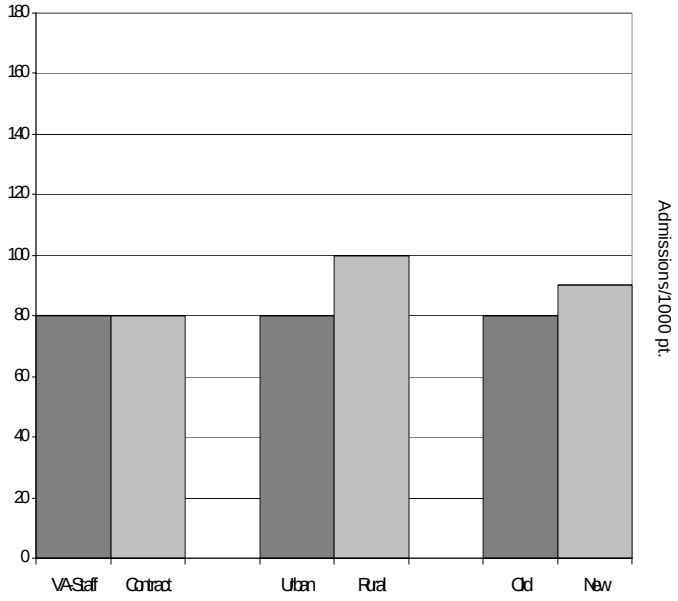
CBOCs were significantly different from the Parent VA facilities in VISNs: 2, 3, 4, 8, 10, 15, 18, 22.

Utilization 7: Average number of VA hospital admissions per 1000 patients

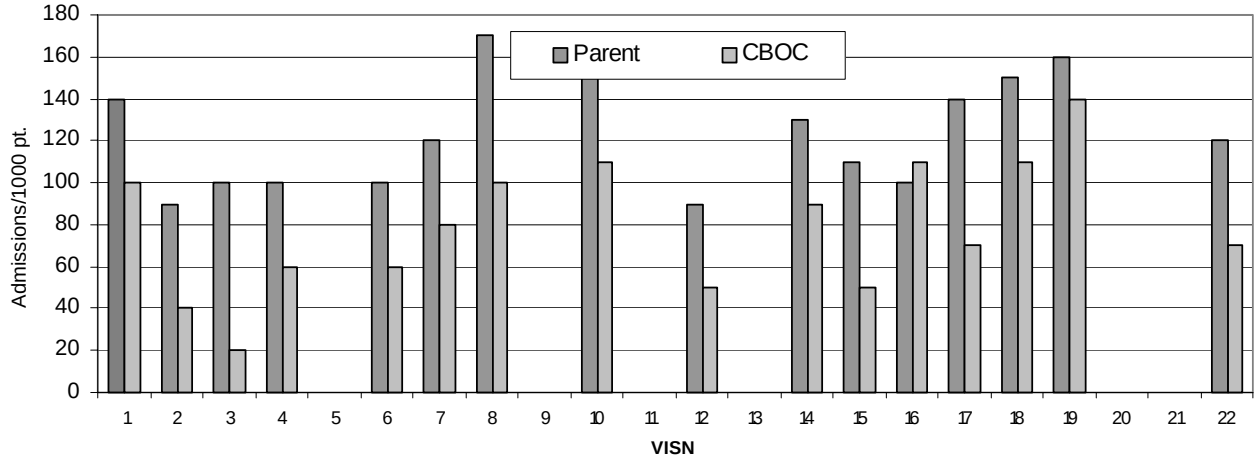
Overall, there was no significant difference in admissions between primary care patients at Parent VAMCs and CBOC patients. However, in 12 of the 16 VISN-specific analyses, CBOC patients did have significantly ($p < 0.01$) fewer admissions than Parent VAMC patients. VA-staffed CBOCs did not differ significantly from Contract CBOCs. Patients in Rural CBOCs had significantly more admissions that patients from Urban CBOCs ($p < 0.01$). CBOCs established before FY98 did not differ significantly from CBOCs established in FY98.



CBOC vs. Parent VAMC



Comparison of CBOC Characteristics



CBOC vs. Parent VAMC, by VISN

CBOCs were significantly different from the Parent VA facilities in VISNs: 1, 2, 3, 4, 7, 8, 10, 14, 15, 17, 18, 22.

DISCUSSION

CBOC versus Parent VAMC Comparisons

For most of the performance measures included in this report, CBOCs are meeting standards recommended by the CBOC Performance Evaluation Committee.

Importantly, the Satisfaction domain performance measures generally demonstrate that CBOC patients are at least as satisfied with their care as patients in the primary care clinics of the Parent VAMCs. In fact, CBOC patients reported higher levels of satisfaction in seven of the eight Customer Service Standards (CSS) categories, although these differences were not always substantial. The Access/Timeliness CSS revealed the most substantial difference favoring CBOCs and this difference was consistent across most VISNs. The greater satisfaction with access and timeliness by CBOC patients is also supported by results from one of the Access performance measures. Specifically, CBOC patients were substantially more likely than Parent VAMC patients to report being seen within 20 minutes of their scheduled appointments. Results from the other Access performance measure indicated that there was no significant difference between CBOCs and Parent VAMCs in waiting times for outpatient follow-up appointments after an inpatient discharge.

Another important finding is that CBOCs and Parent VAMCs differed substantially with respect to the Utilization performance measures. Specifically, CBOC patients are making significantly and substantially more primary care stops than patients in the primary care clinics of the Parent VAMCs. The increased number of primary care visits may have resulted from improved access, as is suggested by the fact that CBOC patients reported fewer problems related to access and timeliness of care than did Parent VAMC patients. In contrast, CBOC patients have significantly fewer specialty stops (at any VA facility) than patients in the primary care clinics of the Parent VAMCs. Likewise, in a substantial subset of the VISNs analyzed, CBOC patients have significantly fewer inpatient days and inpatient admissions (to any VA facility) than patients in the primary care clinics of the Parent VAMCs. However, when data from all VISNs are combined, the difference in inpatient service use is not statistically significant. The finding that CBOC patients use less VA specialty outpatient and inpatient services can be interpreted in several different ways. First, it is possible that the increased use of primary care by CBOC patients reduces the need for specialty outpatient and inpatient care. A second possibility is that CBOC patients face barriers in the referral process for specialty outpatient and inpatient care. However, surveyed CBOC patients were not more likely to report problems with access to specialty care than Parent VAMC patients. Third, CBOC patients may have been more likely use the private sector for specialty and inpatient services than Parent VAMC patients. This explanation is particularly relevant for those CBOC patients who would have had to travel long distances to receive specialty/inpatient care at the Parent VAMC. Fourth, it is also possible that CBOC patients are healthier than patients in the primary care clinics of the Parent VAMC in ways that the casemix adjustment

methodology could not control (see the limitations section), and therefore are in less need of specialty and inpatient care. However, CBOC and Parent VAMC patients had very similar SF12 scores (which represent self-reported health and functional status), which provides some evidence that casemix differences were fairly small.

Results from another Utilization performance measure indicate that CBOCs are enrolling a greater proportion of new users and a slightly higher proportion of lower priority veterans compared to the Parent VAMCs. Specifically, CBOCs have a significantly higher proportion of new users than the primary care clinics of the Parent VAMCs. Moreover, CBOCs have a slightly lower proportion of high priority veterans (priority levels 1 and 2) than the primary care clinics of the Parent VAMCs.

Results from the Mental Health performance measures suggest that CBOCs are performing comparably to the primary care clinics of the Parent VAMCs. Specifically, CBOCs are treating about the same proportion of veterans for mental health problems as the Parent VAMCs. Moreover, following inpatient psychiatric treatment, CBOC patients are provided outpatient follow-up mental health appointments in an equally timely manner as Parent VAMC patients. These later two findings are surprising considering the fact that an earlier report by our group indicated that only 42% of CBOCs offer specialty mental health services on site.

The only Quality domain measure included in this report revealed that CBOC patients were somewhat less likely than Parent VAMC patients to indicate that one provider or team was in charge of their care. However, somewhat at odds with this finding is the additional observation that coordination of care was viewed slightly more positively by CBOC patients than by Parent VAMC patients. It is possible that the greater number of primary care stops per patient at CBOCs (see Utilization 2) resulted in fewer CBOC patients reporting that one provider was in charge of their care.

Comparison of CBOC Characteristics

VA-staffed CBOCs treated a slightly lower proportion of new users than Contract CBOCs. This probably reflects the greater diversity of patients treated at Contract CBOCs. In fact, while only 9.1% VA-Staffed CBOCs provided care to non-VA patients, 68% of Contract CBOCs also provided care to non-VA patients.[5] Compared to VA Staffed CBOCs, Contracted CBOCs are also on average farther from the Parent VA (approximately 50 versus 70 miles). The Contracted CBOCs, therefore, may have a larger proportion of veterans within their catchment area who have not used the Parent VA in the past.

The analysis of CBOC characteristics also indicated that VA-staffed CBOCs scored better on several performance measures than Contract CBOCs. VA-staffed CBOCs treated a significantly greater proportion of patients for mental health problems than did

[5] CBOC Evaluation Project. *CBOC Characteristics.* HSR&D Management Decision and Research Center. Department of Veterans Affairs. February 1999.

Contract CBOCs. This finding is not surprising given the fact that VA-staffed CBOCs are three times more likely to provide specialty mental health services than Contract CBOCs.[6] VA-staffed CBOCs also had significantly more CBOC primary care stops and more specialty stops (at any VA facility) than Contract CBOCs. Differences in specialty care utilization may have resulted from the fact that while 40% of Contract CBOCs required approval from the Parent VAMC for a referral for specialty care, only 13.5% of VA-staffed CBOCs required approval by the Parent VAMC.[7] In addition, VA-staffed CBOCs had significantly shorter waiting times for outpatient follow-up appointments following an inpatient discharge than Contract CBOCs. Despite differences in service use patterns, seven of the eight patient satisfaction survey measures indicated no differences between VA-staffed and Contract CBOCs. The one exception being that patients of VA-Staffed CBOCs reported fewer problems on the emotional support satisfaction measure than patients of Contract CBOCs.

Rural CBOCs did differ somewhat from Urban CBOCs with respect to the AAC-based performance measures. Rural CBOCs treated a significantly lower proportion of new users and a slightly higher proportion of high priority veterans than Urban CBOCs. Patients at Rural CBOCs also made significantly more primary care visits and had significantly more hospital admissions than did patients from Urban CBOCs. However, Rural CBOCs treated a significantly lower proportion of patients for mental health problems than did Urban CBOCs. Patient survey measures did not differ between Urban and Rural CBOCs.

The results also indicated that the newly established CBOCs scored worse than the older CBOCs on only two of the performance measures. CBOCs established in the first half of FY98, treated a significantly lower proportion of patients for mental health problems than CBOCs established in FY97, FY96 or FY95. In addition, patients at newer CBOCs made slightly fewer primary care stops than did patients at older CBOCs. Patients at newer CBOCs were slightly more likely to report a short appointment wait time. New CBOCs did not differ with regard to any other patient survey-based performance measures.

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[6] CBOC Evaluation Project. *CBOC Characteristics.* HSR&D Management Decision and Research Center. Department of Veterans Affairs. February 1999.

[7] CBOC Evaluation Project. *CBOC Characteristics.* HSR&D Management Decision and Research Center. Department of Veterans Affairs. February 1999.

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We would like to thank Sam Georgeson, Tom Crase, Larry Hughes, and Doris Cox at the Austin Automation Center for recreating the outpatient files as requested. Without their help, the analysis of AAC-based performance measures could not have been conducted.

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APPENDIX A

Methods

Austin Automation Center Based Performance Measures

Sample Generation

To be included in the analysis of AAC data[8], a CBOC must have had a visit recorded in the AAC outpatient file before 4/1/98.[9] This inclusion criteria assured that there were six months worth of utilization data in fiscal year 1998 (FY98) with which to calculate the performance measures. Likewise, to be included in the sample the CBOC must have treated at least 50 patients between 5/15/98 and 7/15/98.[10] This inclusion criteria assured that the CBOCs treated a sufficiently large enough sample of patients to yield a stable and precise performance measure. Of the 139 CBOCs established by the end of FY98, 38 meet these two inclusion criteria. These 38 CBOCs were operated by 32 Parent VAMCs, were located in 16 different VISNs, and treated 37,084 unique veterans between 4/1/98 and 9/30/98.

The performance measures based on the patients treated at the 38 CBOCs are compared to the performance measures based on the patients treated at the primary care clinics of the 32 Parent facilities. Specifically, all patients treated at the primary care clinics of the Parent VAMCs are included in the statistical analysis as a comparison group.[11] The primary care clinics of the 32 Parent VAMCs treated 318,368 unique veterans between 4/1/98 and 9/30/98. Any veteran treated at both a CBOC and the primary clinic at a Parent VAMC during the relevant time period was considered to be a CBOC patient, and thus, the two samples of patients are mutually exclusive. The sample for the analysis comparing the 38 CBOCs to the 32 Parent VAMCs includes both the 37,084 patients treated at the CBOCs and the 318,368 patients treated at the primary care clinics of the Parent VAMC (n=355,452).

Statistical Analysis

The statistical analysis tests the hypothesis that the performance measure for the CBOCs is different than the performance measure for the Parent VAMCs. To test this hypothesis

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8 The default outpatient utilization files at AAC credited CBOC visits to the Parent VAMC whenever stops were made at the both the CBOC and the Parent VAMC on the same day (i.e., whenever the patient visited the CBOC, but the lab work was done at the Parent VAMC). At our request, AAC staff recreated the outpatient files in order to credit visits to the CBOC if that is where the patient presented for care.

9 Note that there is often a lag between the first patient visit and the first recorded visit in the outpatient files at the AAC.

10 This criteria was used by the NPDRC for the 1998 Outpatient Customer Satisfaction Survey Survey and was adopted for this analyses to make the two samples consistent.

11 Primary care clinics were defined as all stop codes with primary care (323), general internal medicine (301), geriatric (318,319,350) and women's health (322) clinics in their name.

for a continuously distributed performance measure, a linear regression equation is specified. To test this hypothesis for a dichotomously distributed performance measure, a logistic regression equation is specified. The explanatory variable of interest is a dummy variable indicating whether the patient was treated by a CBOC or by the primary care clinic of a Parent VAMC. The statistical significance of this parameter term is used to test the hypothesis that the performance measure of the CBOC and the Parent VAMC are different. Due to the large sample size, even small unsubstantial differences are likely to be statistically significant. In addition, casemix factors are used to control for differences between CBOC patients and primary care patients at the Parent VAMCs. Casemix adjustment is necessary because CBOC patients may be healthier (or sicker) than patients treated by the Parent VAMC. Available casemix measures in the AAC databases include age, gender, marital status, ethnicity, service connected (yes/no), percent service connected, and prior inpatient and outpatient VA service use in fiscal year 1997.[12] On average, patients were 60 years of age, 94% were male, 53% were married, 51.1% were Caucasian, 13.4% were African American, 2.7% were Hispanic, 0.4% were another ethnicity and 32.4% were of unknown ethnicity, 40.8% were service connected, the average percent service connected was 14.9%, the average number of outpatient visits in FY97 was 11.9 and the average number of admissions in FY97 was 0.23. In addition, a dummy variable is specified for each facility (e.g. STA5A) in the sample, to generate a fixed effects model (CBOC 460GA and Parent VAMC 460 are used as the comparison group).

In a subsequent analysis, the hypothesis that the performance measure for CBOCs are different than the performance measure for Parent VAMCs is tested separately for each of the 16 VISNs. Specifically, 16 independent regressions were specified which included the casemix factors and a dummy variable indicating whether the veteran was a CBOC patient or Parent VAMC patient. The sample size for each of these regressions depended on the number of patients treated in the CBOCs and primary care clinics of the Parent VAMCs within that VISN. Again, the explanatory variable of interest is a dummy variable indicating whether the patient was treated by a CBOC or the primary care clinic of a Parent VAMC. Because some VISNs only contributed one CBOC to the analysis, the facility-specific dummy variables representing the fixed effects are dropped from the VISN-specific regression equations for purposes of parameter identification.

Among the sub-sample of patients treated at the 38 CBOCs, another regression analysis was conducted to test the hypotheses that CBOC characteristics affected the performance measures. Specifically, the regressions measured the impact of 1) VA staffing versus contract, 2) rural versus urban and 3) fiscal year 98 (new) versus fiscal year 97, fiscal year 96 or fiscal year 95 (old) establishment dates. These three CBOC characteristics were measured from the CBOC survey administered in the Fall of 1998 by the VA HSR&D Northwest Center for Outcomes Research in Older Adults. Again, linear and logistic regression equations were specified with the performance measure as the dependent variable. The explanatory variables of interest included three dummy variables: staffing (1 if the CBOC was VA-staffed and 0 if it was contracted), rural (1 if

[12] Ambulatory Care Groups (ACG) were not yet available at AAC when this analysis was conducted.

the CBOCs was located in a non-MSA county and 0 if it was located in an MSA county) and age (1 if the CBOC was established in fiscal year 98 and 0 if it was established prior to fiscal year 98). Again, the covariates included age, gender, marital status, ethnicity, service connected (yes/no), percent service connected, and prior inpatient and outpatient VA service use in FY97.

The expected value of each performance measure for CBOCs and Parent VAMCs is calculated using the regression parameter estimates and the casemix factors of a typical veteran treated as an outpatient in FY98. This approach controls for any casemix differences between CBOC and Parent VAMC patients. Note, however, that expected or predicted values for a typical patient will not necessarily be the same as average values. As a result, the expected values of the performance measures will not necessarily correspond with performance measures calculated using descriptive statistical methods (e.g. means and frequencies). A typical patient was defined using the mean values of all continuous casemix factors (e.g., age, percent service connected, prior visits and prior admissions) and the modal values of all dichotomous variables (e.g., service connected, marital status, ethnicity, and gender). The mean and modal values were calculated using the 3,235,863 unique veterans with an outpatient visit in FY98. For the facility specific dummy variables, facility market shares (percent of patients treated at that facility in the second half of fiscal year 98) were used in conjunction with the fixed effects parameter estimates in the calculation of expected values. The expected value of each performance measure was calculated separately for a typical patient treated in the CBOC and the same typical patient treated in the primary care clinic of the Parent VAMC. The expected value of the performance measure (controlling for casemix) for CBOCs versus Parent VAMCs are presented graphically in a bar chart. Significant differences between CBOCs and Parent VAMCs are reported in the text accompanying the bar charts.

For the 16 VISN specific analysis, the expected values were calculated using the same basic method. However, because the VISN-specific regression analysis did not include the fixed effects of each facility, the expected values were not calculated using the facility-specific dummy variables and facility market shares. The expected value of the performance measure (controlling for casemix) for CBOCs versus Parent VAMCs in each VISN are presented graphically in 16 bar charts.

For the CBOC characteristic analysis, the expected values were calculated using the same methodology. Again, because the CBOC characteristics regression analysis did not include the fixed effects of each facility, the expected values were not calculated using the facility-specific dummy variables and facility market shares. The expected value of the performance measure (controlling for casemix) were calculated separately for 1) Staff versus Contract CBOCs, 2) Rural versus Urban CBOCs and 3) New versus Old CBOCs. Results are presented graphically in three bar charts. When calculating the expected values for each of the three CBOC characteristics, the value of the other two characteristics were held constant at the modes.[13]

[13] This essentially yields one comparison group (an old, urban and VA-staffed CBOC).

Patient Survey-Based Performance Measures

Sample

The survey-based performance measures are calculated from the 1998 VA National Outpatient Customer Satisfaction Survey conducted by the VHA National Performance Data Resource Center in August 1998. To be eligible for the survey for a particular facility, veterans had to have a primary care clinic visit recorded in the AAC for a target time period (5/15/98 to 7/15/98).[14] From these eligible veterans a simple random sample of 175 is selected for each facility. For facilities with 50 to 175 primary care patients during the target period, all patients are samples. Facilities with fewer than 50 patients during the target period are not sampled as a separate entity. A CBOC was sampled as a separate entity if primary care visits for the target time period were recorded in the AAC for the CBOC under a unique five digit STA5A number. At the time the 1998 Outpatient Survey was conducted, approximately one half of CBOCs that were actually operational had unique STA5A numbers allowing them to be sampled for the survey as unique entities. The analyses in this report further restricted the survey sample to include only CBOCs with first patient visits prior to 4/1/98 according the CBOC Characteristics Report, to insure that CBOCs had been in operation at least four months at the time the survey was conducted. Based on these criteria, 43 CBOCs and 36 corresponding Parent VAMCs were included in the analysis of survey-based performance measures. These included 34 VA-staffed and nine Contract CBOCs, 29 urban and 14 rural CBOCs, and 27 older CBOCs and 16 newer CBOCs. Surveys were available for 4,840 CBOC patients and 4,159 Parent VAMC patients. The overall response rate for the national patient survey was 69%.

Statistical Analysis

The statistical analysis used for the survey-based performance measures took a similar approach as that used in the analysis of the AAC-based measures with only a few minor differences. Multivariate regression was used to test the hypothesis that CBOCs differed from Parent VAMCs for a particular performance measure. For dichotomously distributed survey-based performance measures (Access 2, Quality 1, Satisfaction 2), a logistic regression model was used. For CSS scores (Satisfaction 1a-h), a logistic regression model was used to model the proportion of items in a CSS scale answered with a "problem" response. The logistic regressions were conducted using random effects models with random effects for VISNs and random effects for an interaction between VISNs and facility type (ie. Parent facility or CBOC). These random effects were incorporated in the models for two reasons. First, the random effects modeled possible correlation among the patients within a particular VISN and within a facility type within a VISN. Secondly, the random effects were used to model variation across

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[14] NPDRC defines primary care as stop codes for general internal medicine (301), womens' clinic (322), and primary care/med (323). Note that stop codes for geriatric clinics (318, 319, 350) are also included among primary care clinics in the AAC-based analysis, but not for the NPDRC survey.

VISNs in the difference between Parent facilities and CBOC facilities as were the expected values in a VISN.

Similar logistic regression models were used in the assessment of differences between new and old CBOCs, urban and rural CBOCs, and VA-staffed and Contract CBOCs. Note though that these logistic regressions models incorporated random effects for VISNs and for facility within VISN.

All models included the following variables obtained from AAC for casemix adjustment: age, gender, race, service-connected status. In addition the models included the Physical Component Score (PCS) and Mental Component Score (MCS). PCS and MCS are summary health-related quality of life scores derived from the SF-12 and were collected from each survey respondent at the time of the 1998 NPDRC Outpatient Survey.

Expected values for survey-based performance measures were calculated using the regression parameter estimates and the same mean and modal values for a typical veteran outpatient described above for the AAC-based performance measures. The regression based estimates of the expected values were weighted according to the number of unique veterans treated at each facility during the time period 6/1/98 to 9/30/98 according to AAC data (all stops were used for CBOCs and primary care stops 301, 322, and 323 were used for Parent VAMCS). For each performance measure expected values were determined for: all CBOCs in aggregate, all Parent VAMCs in aggregate, CBOCS and Parent VAMCs within VISNs, VA-staffed and contract CBOCs, old and new CBOCs, and for rural and urban CBOCs. Tests for differences were based on the differences between these computed expected values using the estimated standard errors for the differences. Expected values are shown graphically in bar charts. The accompanying text notes statistically significant differences at the $p<0.05$ level for overall CBOC versus Parent VAMC comparisons and for comparisons of CBOC characteristics. Differences at the $p<0.01$ level are noted for VISN-level CBOC versus Parent VAMC comparisons.

Limitations

For the AAC-based performance measures, the statistical comparison between CBOCs and their Parent VAMCs is subject to some important limitations. The most serious limitation concerns casemix adjustment. It is possible that patients treated at CBOCs are healthier or sicker than patients treated at the primary care clinics of the Parent VAMCs. Casemix differences between CBOC patients and primary care patients at the Parent VAMC may have resulted from 1) patient self-selection, 2) targeted enrollment/recruitment strategies at CBOCs, and/or 3) specific VA enrollment policies. None of the variables available in the data files at AAC directly measure health status, although there are proxies such as age, percent service connected and prior service use. Nevertheless, if there is a substantial difference in health status between CBOC patients and primary care patients at Parent VAMCs, the statistical analysis would not have been able to control for all of this difference. As a result, for those AAC-based performance measures that are directly impacted by the health status of patients (e.g., number of referrals, number of admissions, etc.), this analysis may have biased the results.

However, among patients in the survey sample, SF-12 scores for CBOC and Parent VAMC patients were very similar (Physical component score CBOC=35.1, Parent VAMC=34.4; Mental component score CBOC=47.5, Parent VAMC=46.3). Although these slight differences were statistically significant it is improbable that they are clinically significant.

Another limitation concerns the length of the time period used to generate the performance measures. In order to examine a large and representative sample of CBOCs, all CBOCs that had a recorded visit in AAC before 4/1/98 were included. This left only six months of data in FY98 with which to generate the performance measures. It is possible that a longer time period would have generated different results. In addition, some of the CBOCs evaluated were only open for a short period of time before the evaluation period began. Because the analysis of CBOC characteristics suggested that newer CBOCs scored worse on the AAC-based performance measures than older CBOCs, a future comparison of CBOCs and Parent VAMCs may generate different results once CBOCs have been operating for a longer period.

Another limitation of the study concerns the classification of patients who had primary care stops at both the CBOC and the Parent VAMC during the study period. Taking an intent-to-treat perspective, we chose to classify all veterans visiting a CBOC during the study period as a CBOC patient. As a result, 14.1% of the veterans we classified as CBOC patients also had at least one stop at the primary care clinic of the Parent VAMC. Among those veterans who had primary care stops at both the CBOC and the Parent VAMC, only 21.9% had more primary care stops at the Parent VAMC than the CBOC. Consequently, results should not be sensitive to this classification problem because only 3.1% (21.9% of 14.1%) of veterans classified as CBOC patients had more primary care encounters at the Parent VAMC than the CBOC.

Several important limitations also pertain to the patient survey-based performance measures. Self-selection of patients into CBOCs and Parent VAMCs may be an important source of bias for these self-reported measures. Self-selection could influence not only casemix, but also patients perceptions about care, which could influence ratings of satisfaction with care. Casemix differences not captured by the health related quality of life measures could also bias the comparison of CBOCs and Parent VAMCs for survey based performance measures. Another limitation which affects both the patient survey and AAC measures is that few Contract CBOCs could be included in this report, and it is possible that those that are included are not adequately representative of all Contract CBOCs. It should also be noted that we could not weight the survey results to reflect the initial sampling frame for the survey. Finally, because some CBOC patients also receive some types of care at Parent VAMCs, it is possible that for some survey questions, some respondents' answers reflect their experiences not only at CBOCs, but also those at Parent VAMCs.

All performance measures in this report involve comparisons between CBOCs and their affiliated Parent VA facility. It should be noted that in some instances, a VA facility other than the Parent VA facility may have been geographically closer to the CBOC.

Comparisons between CBOCs and such VA facilities may also be relevant in addition to the CBOC vs. Parent VA facility comparisons presented in this report.

APPENDIX B

DESCRIPTION OF PERFORMANCE MEASURES INCLUDED IN THIS REPORT

Access 2: **Patients seen within 20 minutes of scheduled appointment.** This performance measure assesses patient waiting time during clinic visits. The source of this measure is VHA Directive 97-036 CBOC Objective #5 and the FY 2000 Performance Plan. The VHA objective for CBOCs is to reduce waiting time during clinic visits. This performance measure was calculated by determining the proportion of veterans reporting on the NPDRC survey that they were seen within 20 minutes or less from the time of their scheduled appointment.

Access 3: **Average waiting time for follow-up after hospitalization or surgery.** This performance measure assesses number of days lapsed from the date of discharge for hospitalization or surgery until the date of follow-up care at CBOC or VAMC. The source of this measure is VHA Directive 97-036 CBOC Objective #7. The VHA objective for CBOCs is to reduce waiting time for follow-up care. To calculate this measure all discharges after 4/1/98 and before 8/31/98 were analyzed.[15] If a patient had more than one discharge during this time period, only the first discharge was analyzed. The first outpatient visit following the discharge was defined as the follow-up visit. The number of days between the discharge date and the follow-up visit was defined as the waiting time.

Mental Health 1: **Patients assigned a mental health diagnosis.** This performance measure assesses the parity in access for patients with mental as well as physical illnesses. The source of this measure is the report of the Committee for Seriously Mentally Ill Veterans. To calculate this measure for sampled patients, all clinic stops at any outpatient facility between 4/1/98 and 9/30/98 were identified. If the patient had a primary diagnosis (ICD9 code) at any clinic stop that was greater than 290.xx and less than 319.xx, the patient was defined as having been treated for a mental health disorder.

Mental Health 3: **Patients seen within 30 days after hospitalization for a mental health disorder.** This performance measure assess the proportion of CBOC veterans discharged from inpatient care after treatment for mental health disorders (including substance abuse diagnoses) who receive outpatient care related to mental health within 30 days of discharge. The sources of this measure are the Network Directors' Performance Measures, 1998 and the FY 2000 Performance Plan. To calculate this measure all discharges after 4/1/98 and before 8/31/98 were analyzed. All discharges with a primary diagnosis (the ICD9 code responsible for the majority of costs during the stay) greater

[15] Discharges after 9/1/98 were dropped so that at least 30 days worth of outpatient data were available in the FY98 (10/1/97 to 9/30/98) files to identify follow-up visits. If no follow-up visit was identified in FY98, the number of days between the discharge date and 10/1/98 was defined as the follow-up time.

than 290.xx and less than 319.xx were identified. If a patient had more than one discharge with a psychiatric primary diagnosis during this time period, only the first discharge was analyzed. All clinic stops to any VA facility within 30 days of the discharge date were identified. If the primary diagnosis of the stop was greater than 290.xx and less than 319.xx the patient was defined as having a follow-up mental health visit within 30 days of discharge. Because too few patients from each facility were discharged with a mental health diagnosis, the dummy variables (representing the fixed effects) were dropped from the regression specification. Likewise, because there were too few patients from each VISN with a mental health diagnosis, the analysis was not conducted separately for each VISN. Likewise, because too few of the CBOC patients were discharged with a mental health diagnosis, the impact of CBOC characteristics could not be estimated reliably.

Quality 1: **Patients reporting one provider or team in charge of care.** This performance measure assesses overall continuity of patient care. The source of this measure is the 1998 Network Directors' Performance Measures and the FY 2000 Performance Plan. This performance measure was calculated by determining the proportion of NPDRC survey respondents answering yes to the question, "Is there one provider or team in charge of your care?"

Satisfaction 1: **Average Customer Service Standard (CSS) score on the ambulatory care customer feedback survey.** This performance measure assesses veterans' perceptions of their health care in several categories (Customer Service Standards). The source of this measure is the 1998 Network Directors' Performance Measures. CSS scores are computed based on answers to NPDRC survey questions pertaining to a particular CSS. The number of questions pertaining to the CSS scores in this report range from two to seven. The CSS scores are based on the proportion of survey responses to questions in each CSS category, indicative of a problem with care. Therefore, higher CSS scores indicate more perceived problems with care. CSS scores range from 0-1. Response categories indicative of a "problem" previously established by NPDRC were used in computing CSS scores. This report does not include the CSS for Continuity of Care because the single survey question that is used for that CSS is used as the basis for another performance measure (Quality 1). This report also does not include the CSS for Pharmacy because the questions for that CSS were not framed for CBOC-Parent VAMC comparisons. This CBOC performance measure includes separate scores for the following eight Customer Service Standards:

> ***Satisfaction 1a*—Access/Timeliness:** This CSS assesses provision of timely access to health care based on the following survey questions:
>
> - What happened when you called for an appointment?
> - Were you able to get this clinic appointment as soon as you wanted?
> - On the day of your appointment, how long did you wait in line to register?
> - How long after the time when your appointment was scheduled to begin did you wait to be seen?
> - Did you have to wait too long in the waiting room?
> - Did you spend as much time with your provider as you wanted?

- Do you think your problem should have been handled sooner?

***Satisfaction 1b*--Patient Education/Information:** This CSS assesses provision of information and education about health care that the patient understands based on the following survey questions:

- When you asked questions, did you get answers you could understand?
- Did the provider explain why you needed tests in a way that you could understand?
- After the tests were done, did the provider explain the results in a way that you could understand?
- Did someone explain the purpose of any prescribed medicines in a way you could understand?
- Did someone tell you about side effects of your medicines in a way you could understand?
- Did the provider explain what to do if problems or symptoms continued, got worse, or came back?
- Did you get as much information about your health and/or treatment as you wanted from the provider?

***Satisfaction 1c*--Preferences:** This CSS assesses involving the patient in decisions about care and meeting patient preferences based on the following questions:

- When you saw the provider, did he or she give you a chance to explain the reason for your visit?
- Did the provider listen to what you had to say?
- Were you involved in decisions about your care as much as you wanted?
- Was the provider willing to talk to your family or friends about your health or treatment?
- Did the provider ask how your family or living situation might affect your health?

***Satisfaction 1d*—Emotional Support:** This CSS assesses providing support to meet patients' emotional needs based on the following survey questions:

- Did you have concerns that you wanted to discuss but did not?
- If you and the provider did not talk about your concerns, was it because…(respondent chooses from 7 categories):
- Did you have confidence and trust in the provider you saw?
- Did you have trouble understanding the provider because of a language problem?

***Satisfaction 1e*—Coordination of Care (overall):** This CSS assesses coordination of overall care based on the following questions:

- Were the providers who cared for you always familiar with your most recent medical history?
- Were there times when one of your providers did not know about tests you had or their results?

- Were there times when one of your providers did not know about changes in your treatment that another provider recommended?
- Were there times when you were confused because different providers told you different things?
- Did you always know what the next step in your care would be?
- Did you know who to ask when you had questions about your health care?

***Satisfaction 1f*—Coordination of Care (visit):** This CSS assesses coordination of care related to a specific visit based on the following questions:

- Did someone tell you how you would find out the results of your tests?
- Did someone tell you when you would find out the results of your tests?
- If you needed another visit with this provider, did the staff do everything they could to make the necessary arrangements?
- If you needed another visit with another provider did the staff do everything they could to make the necessary arrangements?
- Did you know who to call if you needed help or had more questions after you left your appointment?

***Satisfaction 1g*—Courtesy:** This CSS assesses provision of care with courtesy and dignity based on the following questions:

- How would you rate the courtesy of the person who made your appointment?
- Overall, how would you rate the courtesy of your provider?

***Satisfaction 1h*—Specialty Care Access:** This CSS assesses perceptions concerning access to specialty care.

- During the past two months, what kind of specialist visits did you have?
- How often did you get to see specialists when you thought you needed to?
- How often did you have difficulty making appointments with the specialists you wanted to see?
- How often were you given enough information about why your were to see your VA specialists?
- How often did your VA specialists have the information they needed from your medical records?

Satisfaction 2: **Patients rating healthcare as very good or excellent.** This performance measure assesses overall satisfaction with healthcare delivery at CBOCs. The source of this measure is VHA Directive 97-036 CBOC Objective #12 and the FY 2000 Performance Plan. The VHA objective for CBOCs is to improve overall satisfaction. This performance measure was calculated by determining the proportion of NPDRC survey respondents that gave a rating of very good or excellent for the overall quality of their most recent CBOC or VA primary care clinic visit.

Utilization 1: **User status and priority status of patients.** This performance measure assesses the percent of unique veterans seen at CBOC by user status (current/new) and priority status. The sources for this measure are VHA Directive 97-036, Network

Directors' Performance Measures, 1998, the General Accounting Office Report (GAO/HEHS 98-116), and the CBOC task force. To determine user status (new or old), inpatient and outpatient utilization data were examined for FY95, FY96 and FY97. Patients who had no visits or admissions in FY95, FY96 or FY97 were defined as new patients. Prior inpatient and outpatient service use in FY97 was not used as a covariate in the analysis of this performance measure since it was tautologically related to the dependent variable. Although there are seven priority groups, AAC data does not enable one to categorize patients into all seven of the groups. Therefore, patients with service-connected conditions rated above 30% (priority groups 1 and 2) were defined as high priority and all other veterans were defined as low priority. Service connected (yes/no) and percent service connected were not used as a covariates in the analysis of this performance measure since they were tautologically related to the dependent variable.

Utilization 2: **Average number of VA primary care visits per patient.** This performance measure assesses the average number of primary care visits per unique veteran. The source for this measure is the General Accounting Office Report (GAO/HEHS 98-116). To calculate this performance measure, clinic stops made between 4/1/98 and 9/30/98 were counted. For CBOC patients, all visits to the CBOC were summed regardless of clinic or diagnosis. For primary care patients at the Parent VAMC, all visit to primary care clinics were counted regardless of diagnosis. Note that for CBOC patients, visits to primary care clinics at the Parent VAMC were not counted.

Utilization 4: **Average number of VA specialty visits per patient.** This performance measures assesses the generation of referrals by CBOCs for specialty consultations with VA healthcare specialists. The source of this measure is the CBOC task force. This performance measure was approximated by the number stops to specialty clinics (i.e., not primary care, research, or administrative stops) the patient made between 4/1/98 and 9/30/98 to any VA facility. Note that in some cases, this may represent ongoing specialty care for chronic conditions rather than referrals from primary care to specialty care. However, there is no information in the AAC databases to distinguish a referral/ consultation specialty visit from a follow-up/routine specialty visit.

Utilization 6**: VA bed days of care per patient.** This performance measure assesses acute bed-days of care per unique veteran. The sources for this measure are the Network Directors' Performance Measures, 1998, and the FY 2000 Performance Plan. To calculate this measure, all discharges from any VA facility after 4/1/98 and before 9/30/98 were identified and the length of stay determined. For patients with multiple discharges during the time period, the length of stay was summed across inpatient episodes. For patients with no admissions, the length of stay was set to zero.

Utilization 7: **Average number of VA hospital admissions per 1000 patients.** This measure assesses the direct referrals for hospitalizations and indirect hospitalization admissions resulting from specialty consult referrals. The source of this measure is the CBOC Task Force. To calculate this measure, all admissions to any VA facility after 4/1/98 and before 9/30/98 were identified. For each patient, the total number of admissions during the six month period was then calculated.

APPENDIX C

CBOCs INCLUDED IN PERFORMANCE REPORT 1

VISN	CBOC Station #	CBOC Name	Parent VA	Parent VA #	CBOC Type	Urban/ Rural	1st Veteran Visit
1	608GA	VA Primary Care Clinic, Pease Air National Guard Base	Manchester	608	VA-staffed	Urban	Mar-97
1	650GB*	Hyannis Primary Care Clinic	New England HCS, Providence	650	VA-staffed	Urban	Feb-98
2	500GC	Glen Falls Primary Care Practice	Albany	500	Contract	Urban	Oct-97
2	670GE	Binghamton CBOC	Syracuse	670	VA-staffed	Urban	Dec-96
3	527GA	Staten Island Veterans Health Care Center	Brooklyn	527	VA-staffed	Urban	Jan-96
3	561GA	Trenton Health Practice	New Jersey HCS	561	VA-staffed	Urban	Jan-96
3	561HA	Hackensack Health Practice, Bergen County	New Jersey HCS	561	VA-staffed	Urban	Aug-95
3	630GA*	Harlem VA Care Center	New York City	630	VA-staffed	Urban	Dec-96
4	460GA	VA Primary Care Clinic, Milsboro	Wilmington	460	Contract	Rural	Mar-98
4	642GA	Outpatient Clinic at Marshall Hall, Ft Dix	Philadelphia	642	VA-staffed	Urban	Oct-97
4	642GB	VA Outpatient Clinic at Cape May	Philadelphia	642	VA-staffed	Urban	Oct-97
4	693GB	Williamsport CBOC	Wilkes-Barre	693	VA-staffed	Urban	Jul-97
4	693GC	Tobyhanna CBOC	Wilkes-Barre	693	VA-staffed	Rural	Dec-97
6	658GA	Tazewell Family Physicians	Salem	658	Contract	Rural	Aug-97
7	619GB	VA Outpatient Clinic, Dothan	Central Alabama HCS	619	Contract	Urban	Dec-97
8	516GA	Sarasota CBOC	Bay Pines	516	VA-staffed	Urban	May-97
8	546GC	Homestead CBOC	Miami	546	VA-staffed	Urban	May-97
8	673GB	Bartow CBOC	Tampa	673	VA-staffed	Urban	Aug-97
8	673GC*	Brooksville CBOC	Tampa	673	VA-staffed	Rural	Mar-98
9	603GA*	Veterans Fort Knox Clinic	Louisville	603	VA-staffed	Rural	Feb-98
10	538GA	DVA CBOC, Athens	Chillicothe	538	VA-staffed	Rural	Aug-97

* Only included in patient survey analysis
** Only included in AAC analysis

APPENDIX C

CBOCs INCLUDED IN PERFORMANCE REPORT 1 – continued

VISN	CBOC Station #	CBOC Name	Parent VA	Parent VA #	CBOC Type	Urban/ Rural	1st Veteran Visit
10	541GB	DVA CBOC, Lorain	Cleveland	541	VA-staffed	Urban	Sep-97
10	541GC	DVA CBOC, Sandusky	Cleveland	541	VA-staffed	Rural	Mar-98
10	552HA	DVA CBOC, Springfield	Dayton	552	VA-staffed	Urban	Feb-98
12	537HA	Woodlawn Clinic, Chicago	Chicago HCS, West Side	537	VA-staffed	Urban	Oct-95
12	585GA	Hancock Clinic	Iron Mountain	585	VA-staffed	Rural	May-97
14	555HB	VA Clinic, Mason City	Central IA HCS	555	VA-staffed	Rural	Jan-98
14	584GB	Waterloo Outpatient Clinic	Iowa City	584	VA-staffed	Urban	Jan-98
15	609GA	Mt. Vernon CBOC	Marion	609	VA-staffed	Rural	Mar-97
15	677GA	St. Joseph VA Outpatient Clinic	Leavenworth	677	VA-staffed	Urban	Sep-97
16	586GA**	Durant CBOC	Jackson	586	Contract	Rural	Jul-97
17	549GA*	Camp Fannin CBOC, Tyler	North Texas HCS	549	Contract	Urban	Jun-97
17	674HA	Hamilton CBOC	Central Texas HCS	674	Contract	Rural	Apr-95
18	519GA	VA Medical Clinic in Odessa	Big Spring	519	VA-staffed	Urban	Feb-98
18	519HC	VA Medical Clinic in Abilene	Big Spring	519	VA-staffed	Rural	Dec-95
18	649GA	Kingman CBOC	Prescott	649	VA-staffed	Urban	Mar-98
18	678GA	Sierra Vista CBOC, Ft Huachuca	Tucson	678	VA-staffed	Rural	Apr-97
18	678GB	Yuma CBOC	Tucson	678	VA-staffed	Urban	Oct-97
19	436GB*	Great Falls Primary Care Clinic	Montana HCS	436	VA-staffed	Urban	Sep-97
19	436GC*	Missoula Primary Care Clinic	Montana HCS	436	VA-staffed	Rural	Jun-97
19	554GB	Aurora CBOC	Denver	554	VA-staffed	Urban	Jan-98
19	666GB**	Casper CBOC	Sheridan	666	VA-staffed	Urban	Apr-97
22	605GA	Victorville CBOC	Loma Linda	605	Contract	Urban	Jul-97
22	664GA	El Centro CBOC	San Diego	664	Contract	Rural	Jan-96
22	691GC	Gardena	Greater LA HCS	691	VA-staffed	Urban	May-97

* Only included in patient survey analysis
** Only included in AAC analysis