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Evaluating Contract versus VA-Staffed Community Based Outpatient Clinics (CBOCs) Using Patient Satisfaction and Access Measures in the Veterans Health Administration

A Graduate Management Project for the

U.S. Army-Baylor Graduate Program in Health Care Administration

Central Arkansas Veterans Healthcare System

Little Rock, Arkansas

Janna Belote, VA Civilian

Preceptor: Michael R. Winn, Medical Center Director

Faculty Reader: Lawrence V. Fulton, Ph.D.

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ABSTRACT

The Veterans Health Administration (VHA) is the largest public health system in the United States. As of June 2008, it provided care to Veterans through 153 medical centers and 737 community-based outpatient clinics (CBOCs). This research investigates differences in contract versus VA-staffed CBOCs in terms of patient satisfaction, clinic wait times within 30 days for appointments, and missed clinic opportunity rates. Contract versus VA-staffing of a CBOC serves as the grouping variable in Student's *t* tests for differences in mean scores, as well as the dependent variable in logistic regression models considering independent variables of scores and clinic and patient characteristics. Student's *t* tests for differences in mean scores indicate that contract CBOCs have higher patient satisfaction for clinic access than VA-staffed CBOCs, but lower satisfaction scores for continuity of care. Logistic regression models find patient satisfaction scores for access to be a positive predictor of a CBOC's contract status, but patient perceptions of coordination of care are a negative predictor of a CBOC's contract status. Similar analysis using *t* tests and logistic regression finds that contract CBOCs do better in providing access to appointments within 30 days. However, contract CBOCs had more missed clinic opportunities.

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INTRODUCTION

Conditions That Prompted the Study

In fiscal year 2008 (FY08), the Central Arkansas Veterans Healthcare System (CAVHS) provided care through two main campuses, a Homeless Outreach program, and five community-based outpatient clinics (CBOCs). The CAVHS CBOCs operate with contract primary care and VA-staffed mental health services. In fiscal year 2009 (FY09), a 6th CBOC for Searcy, Arkansas will open. While the original Searcy CBOC proposal outlined a contract-based primary care operation, CAVHS issued a White Paper to Veterans Integrated Service Network (VISN) 16 to change the model to a VA-staffed clinic (Central Arkansas Veterans Healthcare System, 2008).

CAVHS believes a change to a VA staffed model of care for the Searcy CBOC will improve flexibility, patient and employee satisfaction, Veterans Service Organization (VSO) support, and quality of care (Central Arkansas Veterans Healthcare System, 2008). The facility would like to apply lessons learned from a "tumultuous and negative experience" with a vendor transition for an existing contract CBOC. A recent cost projection for the Searcy proposal finds that by year three, the VA-staffed model would have costs in range of $11-21 per visit of the contract model, with the difference depending on lease build-out and rental cost scenarios (Belote, 2009). However, CAVHS management would like evidence to explore the hypothesis of whether VA-staffed CBOCs have better outcomes in terms of patient access and satisfaction than contract CBOCs. Such research will not only support the CAVHS efforts to change Searcy to a VA-staffed model for primary care, but also provide evidence to support the medical center's plans to transition other CBOCs to VA-staffed model.

Research Question

Is there a difference in terms of patient satisfaction and access outcomes for contract versus VA-staffed CBOCs?

Background

The Veterans Health Administration (VHA) is the largest public health system in the United States (Zhou, Qin, & Maciejewski, 2006). As of June 2008, it provided care to Veterans through 153 medical centers and 737 community-based outpatient clinics (CBOCs) (United States Department of Veterans Affairs, 2008). In fiscal year 2007 (FY07), the VA healthcare system had 7.8 million persons enrolled in the VA healthcare system, with 5.5 million patients receiving care.

As recently as the early 1990's, VHA's services focused on specialty care delivered through VA hospitals and satellite clinics (Chapko, et al., 2002). With satellite clinics located a minimum of 3 hours travel or 100 miles from the nearest VA facilities, more than 25% of Veterans had to travel over sixty miles for care (United States General Accounting Office, 2003). A shift towards outpatient, preventative, and community-based care began in the 1990s. The VA's plans for increasing access and accountability were outlined in the seminal document VHA's Prescription for Change (Kizer, Prescription for change: The guiding principles and strategic objectives underlying the tranformation of the Veterans Healthcare System, 1996). This document describes the VA's new focus of on outpatient care. As part of the VA transformation, the VA also placed emphasis on measuring outcomes and value. Under Mission Goal 1: Provide Excellence in Healthcare Value, Principle 12 is that effectiveness and efficiency of healthcare can be measured and defined by data.

In 1996, the Veterans' Health Care Eligibility Reform Act allowed the VA to expand the use of outpatient care, simplify eligibility, and provide for greater contracting flexibility with community providers (Katz, 1996). Around this time, the VHA reorganized into what are now 21 Veterans Integrated Services Networks (VISNs) (Perlin, Kolodner, & Roswell, 2004). In the mid 1990's, the Department of Veterans Affairs (VA) began using community-based outpatient clinics (CBOCs) to improve Veterans' geographical access to primary care (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008). VHA Directive 97-036, which allowed VAMCs to create CBOCs to improve Veterans' access to primary and mental health care, reflects the changing emphasis towards community-based care (Borowsky, Nelson, Fortney, Hedeen, Bradley, & Chapko, 2002). VHA Directive 97-036 discusses the objectives of the CBOCs:

1. Improve quality of care by facilitating patient compliance with clinical instructions and continuity of care (because of more convenient access) and by promoting more timely attention to medical problems.
2. Shorten hospital length of stay by accomplishing pre-admission work-up or providing post-discharge follow-up care closer to the patient's home.
3. Reduce the need to travel long distances to receive care, thus reducing beneficiary travel expenditures.
4. Reduce the distance veterans need to travel in congested urban traffic or inclement weather.
5. Redirect patients currently served at medical center clinics and thereby shorten waiting times or relieve congestion at these treatment sites.
6. Reduce fee-basis care (when that would be cost-beneficial).
7. Shorten waiting times for follow-up care (e.g., post surgical or after hospitalization).
8. Reduce the operating cost of providing care; i.e., provide care to existing patients at a lower cost by providing it in a community ambulatory care setting rather than a hospital-based clinic.
9. Reduce the need for home health services because of more accessible follow-up care.
10. Enhance service delivery by community agencies through improved liaison.
11. Improve access to care for historically underserved veteran populations.
12. Improve overall customer satisfaction for current users.
13. Shift emphasis to prevention, promotion of health and patient education in contrast to treating patients episodically (Chapko, et al., 2002).

In October 2000, VA established the Capital Asset Realignment for Enhanced Services (CARES) program, with a goal of improving Veterans' access to acute inpatient care, primary care, and specialty care (United States General Accounting Office, 2003). The CARES project sought to identify how well the geographic distribution of VA health care resources matches projected needs and recommend changes necessary to better align resources and needs. Toward that end, the VHA reviewed 76 geographic areas—groups of counties—in order to analyze the travel times faced by Veterans for their access to care.

As part of this shift in focus, the VA has changed how it classifies outpatient clinics. VHA Directive 2008-048 redefines a CBOC as "a VA-operated, VA-funded or reimbursed site of care geographically distinct and separate from a parent medical facility" not to be distinguished by the volume of visits or types of services provided. This directive confirms the VA's "increased emphasis" on establishing new CBOCs and appropriately tracking activity (United States Deparment of Veterans Affairs, 2008).

Organization

The VA planned two CBOC models for improving Veteran access to primary care: VA staffed (salaried providers) versus contract-based capitated providers (United States General Accounting Office, 2003). Each CBOC reports to a VA hospital or medical center, referred to as the parent facility (Chapko, et al., 2002). Each of the strategies has strengths and weaknesses.

Creating VA owned, operated, and staffed primary care clinics is resource intensive, but may allow the VA to more successfully integrate these clinics into its system of hospitals and specialty care (Borowsky, Nelson, Fortney, Hedeen, Bradley, & Chapko, 2002). Contracting with non-VA primary care providers may prove to be more cost-effective than VA-staffed and

operated clinics, but requires an effective interface between these non-VA providers and VA inpatient and specialty outpatient providers.

New CBOC Developments

In addition to offering primary care, the role of CBOCs is evolving to meet the mental health needs of Veterans. In 2004, the VA issued its version of the Mental Health Strategic Plan (MHSP) towards the transformation of American mental health (Zeiss & Karlin, 2008). As part of MHSP implementation, the VA's Office of Mental Health Services (OMHS) began providing funding to co-locate at least one mental health (MH) staff member at each CBOC, with a target of providing mental health services as 10% of CBOC workload. More recently, VHA Handbook 1160.01, Uniform Mental Health Services in VA Medical Centers and Clinics, has indicated that facility mental health leadership must have oversight of CBOC MH services (Department of Veterans Affairs, 2008). Moreover, CBOCs serving 1500-5000 Veterans must offer general mental health services, and CBOCs serving 5000 or more Veterans will offer both specialty and general mental health services. VA medical centers (VAMCs) and CBOCs are now looking to offer integrated primary care and mental health activities (Zeiss & Karlin, 2008).

CBOCs provide mental health services under varied models. VA-staffed CBOCs use VA mental health providers, and contract CBOCs may offer contract or VA-staffed mental health care. For example, the Central Arkansas Veterans Healthcare System has five active CBOCs as of September 2008, all with contract primary care and VA-staffed mental health care. As of September 2008, the separate lease/contract status for mental health services does not appear on the VA site tracking (VAST) national report of CBOCs (Martin, 2008).

Focus on Measurement

The VA's prescription for change involved not only the transformation to local primary care, but also the accountability of managers for meeting performance target using measurement systems (Kizer, Demakis, & Feussner, Reinventing VA health care: Systemizing quality improvevment and quality innovation, 2000) (United States General Accounting Office, 2003). The 1998 CBOC Performance Evaluation Project addressed both of these objectives.

Literature Review

1998 CBOC Performance Evaluation Project

The CBOC Performance Evaluation Project, undertaken at the request of the VA Undersecretary for Health, used six months of data from fiscal year 1998. A 1999 VA report and related journal articles describe the project's efforts and findings (Borowsky, Nelson, Fortney, Hedeen, Bradley, & Chapko, 2002) (Chapko, et al., 2002) (Fortney, Borowsky, Maciejewski, & Chapko, 2002) (Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System - Seattle Division, 1999) (Hedeen, Heagerty, Fortney, Borowsky, Walder, & Chapko, 2002) (Maciejewski, Chapko, Hedeen, & Fortney, 2002). The system-wide review, which described the characteristics of CBOCs and their patients, focused on two objectives: evaluate if CBOCs were meeting their objectives and whether any of the CBOC models showed more success in meeting their objectives (Chapko, et al., 2002).

The detailed review evaluated objectives pertaining to the domains of access, cost, mental health, quality, patient perceptions of care, and utilization (Chapko, et al., 2002). The researchers found that CBOCs were "successful in meeting their goals and objectives across the domains measured," helped to reach new patients, and generally equaled their parent facilities in terms of patient satisfaction (Chapko, et al., 2002). Moreover, patients receiving care in the CBOCs did

not differ significantly in terms of specialty care access, primary care costs, hospital length of stay, and waiting time for a follow-up visit following a hospital inpatient admission.

These preliminary studies also suggested that patients receiving care at CBOCs had lower specialty care and overall total costs of care than patients receiving all of their care at the parent VAMCs (Chapko, et al., 2002). One potential reason for the decreased costs is that patients referred from CBOCs received fewer specialty care visits than their counterparts referred from VAMCs.

Patient and clinic characteristics. By the end of fiscal year 1998, the VA had 139 CBOCs in operation (Chapko, et al., 2002). Per the 1998 CBOC evaluation project, the VA had 61% urban versus 39% rurally located CBOCs, 64% VA-staff versus 36% contract CBOCs, and 28% of CBOCs offering mental health plus primary care services. At the time, 18% of contract CBOCs offered mental health. VA staffed versus contract CBOCs were less likely to offer on-site laboratory testing , while VA staffed CBOCs were more likely to offer social work (38% vs. 12%) and dietary services (22% vs. 10%).

Utilization. The 1998 studies reviewed data for CBOC patients having a recorded encounter from 4/1/98-9/30/98 among 38 CBOCs meeting inclusion criteria the study (Fortney, Borowsky, Maciejewski, & Chapko, 2002). With these criteria, the researchers found CBOC patients had "less specialty care encounters than patients receiving primary care at the parent facilities."

Fortney et al. also reviewed utilization for patients seen at contract versus VA-staffed CBOCs. Those visiting contract CBOCs had fewer primary care and specialty care encounters (Fortney, Borowsky, Maciejewski, & Chapko, 2002). However, patients seen at contract CBOCs did not show significant differences in numbers of admissions or inpatient days.

Access. For the fiscal year 1998 studies, performance on contract versus VA-staffed CBOCs did not vary significantly in terms of percentage of patients seen within 20 minutes of arrival, patient perceptions of provider consistency, timeliness of care, and patient enrollment category (Chapko, et al., 2002). The researchers found no significant difference in inpatient utilization or in wait times for follow-up appointments after an inpatient episode of care (Hedeen, Heagerty, Fortney, Borowsky, Walder, & Chapko, 2002). However, patients at VA staffed (versus contract) CBOCs had shorter waiting times for appointments (Fortney, Borowsky, Maciejewski, & Chapko, 2002).

Quality. For the 1998-commissioned CBOC Performance Evaluation Project, the research team compared quality of care for patients at 20 geographically diverse CBOCs as well as patients receiving care at the parent facilities of these CBOCs (Fortney, Borowsky, Maciejewski, & Chapko, 2002). The research focused on 7 Prevention Index (PI) and 9 Chronic Disease Care Indicators (CDCI) implemented in the VHA in 1995 to assess performance in areas such as disease detection and chronic disease care (Hedeen, Heagerty, Fortney, Borowsky, Walder, & Chapko, 2002).

For the quality studies, the data was limited to CBOCs targeted for external peer review programs (EPRP) of both electronic and paper records in cooperation with the VA office of Quality and Performance (OQP) (Hedeen, Heagerty, Fortney, Borowsky, Walder, & Chapko, 2002). The researchers were able to account for gender, ethnicity, marital status, VA eligibility status, parent facility (for CBOCs), and Diagnostic Cost Group (DCG). Hedeen et al. studied overall performance for CBOCs versus VAMCs as well as performance of contract verses VA-staffed CBOC indicators in terms of mean performances for measures adjusted for time, age, gender, ethnicity, marital status, VA eligibility, and DCG complexity.

While the quality of care was not statistically different for CBOC versus parent VAMCs (save for diabetes retinal care), CBOCs tended to perform lower than their parent VAMCS on PI and CDCI measures, with contract CBOCs having fewer interventions than VA-staffed CBOCs. Possible explanations include lack of experience at the CBOCs with the EPRP process and less access to specialized equipment and tests at the CBOCs. (Hedeen, Heagerty, Fortney, Borowsky, Walder, & Chapko, 2002).

Patient satisfaction. The 1998 CBOC evaluation project reviewed patient perceptions of CBOCs versus VAMCs using survey data from the 1998 VA National Outpatient Customer Satisfaction Survey in terms of access and timelines of care, patient education, patient preferences, emotional support, courtesy, coordination of care, and access to specialty care (Borowsky, Nelson, Fortney, Hedeen, Bradley, & Chapko, 2002). For the study, scales indicated whether a patient perceived a problem with care along with data incorporated from VA administrative databases for factors such as age, gender, ethnicity, and service-connection. This study found lower odds for problems reported for CBOC versus VAMC care, save for access to specialty care. While CBOC patients were less likely to report that one provider or team was in charge of care, they reported fewer problems with wait times. "In most other dimensions of care however, the results of this survey indicate that CBOCs are performing at least as well as traditional VAMC clinics." The study also found "There were no significant differences between contract and VA-staff CBOCs in the odds of reporting a problem for any of the scales."

A limitation of the study is the possibility of self-selection for patients returning surveys, or initial dissatisfaction of patients with care in the parent VA medical centers (Borowsky, Nelson, Fortney, Hedeen, Bradley, & Chapko, 2002). The authors also noted the relative low

number of contract CBOCs covered in the study, and suggested that future studies address if perceptions of satisfaction in contract CBOCs remain consistent over time.

Costs. For the 1998 CBOC Performance Evaluation Project, Maciejewski et al. compared direct costs for patient encounters for patients receiving care at 18 VA-staffed CBOCs versus primary care clinics at 14 VA medical centers (Maciejewski, Chapko, Hedeen, & Fortney, 2002). This article focuses on VA-staffed CBOCs and excludes contract CBOCs due to differences in organizational structures and early problems with cost data for contract CBOCs. This research looks at direct cost per primary care visit, direct primary care cost per patient, and direct total cost per patient.

The 1998 research used observed patient characteristics to control for cost differentials pertaining to individual patients. For patient differentials, Maciejewski et al used gender, race, service connection, age, and case-mix adjustment based on Diagnostic Cost Groups (DCGs). They also adjusted for "clustering" by incorporating links to parent VAMCs and networks in the analysis. After these adjustments, the researchers surmised "Direct cost per patient differences may be caused by three factors, which we can observe: (1) visit rate differences, (2) differences in provider practice style, and (3) selection bias" (Maciejewski, Chapko, Hedeen, & Fortney, 2002).

The source of cost data was the 1998 Decision Support System (DSS) Outpatient National Extracts and the DSS Inpatient National Extract for the second half of fiscal year 1998: 4/1/98-9/30/98 (Maciejewski, Chapko, Hedeen, & Fortney, 2002). Direct costs per primary care visit and primary are costs per patients were not significantly different for CBOC versus VAMC patients, after adjustments. However, CBOC patients had lower specialty and ancillary cost per patient. While Maciejewski et al. did not find significant difference in costs among new and

established CBOCs; they did find that geographic location was a factor, with patients receiving CBOC care from urban CBOCs having higher costs than patients receiving care from rural CBOCs.

Limitations of the 1998 studies. Maciejewski, et al. noted in later research that the early studies used smaller sample sizes than later studies, often-excluded contract CBOCs, evaluated CBOCs at a time when cost histories were unstable, and did not consistently account for distance (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007). Validity concerns included finding of zero-cost encounters by the Health Economic Resource Center (HERC), case-mix differentials not captured, and "generalizibility" of the results using the limited sample size with six months of data (Maciejewski, Chapko, Hedeen, & Fortney, 2002).

Later Evaluation

By the third quarter of 2000, the VA operated 277 CBOCs, including those formerly known as satellite clinics (Chapko, et al., 2002). By the end of fiscal year 2007, the VA's VHA site tracking (VAST) list reported over 600 operational CBOCs. In studies reported after the 1998 CBOC evaluation project, researchers continued to visit the question of whether CBOCs were meeting their mission and showed interest in different staffing models and the evolving role of the CBOCs.

Patient characteristics. A 2007 study found "CBOC patients are younger and more likely to be married" than VAMC and crossover patients. Compared to patients receiving care at both CBOCs and VAMCS (crossover patients) or VAMCS only, CBOC patients tended to have lower service connected disabilities (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007).

Utilization. Later reviews of utilization focused on the relationships between CBOCs and their parent VAMCs and refined the definition of a CBOC patient. A 2007 study refined the

definition CBOC patients of in terms where they received primary care: CBOCs only, VAMCs only or both, as "cross-over" patients (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007). With adjustments for variables such as age, gender, race, marital status, service connection, CBOC distance from the parent facility, and a Diagnosis Cost Group (DCG) case-mix, the 2007 study found that CBOC (versus VAMC and cross-over) patients had fewer primary care visits, lower primary care costs, and fewer specialty care visits and inpatient admissions. Crossover patients had more visits and expenditures than CBOC and VAMC patients did. Moreover, research published in 2008 found that patients in contract CBOCs had significantly less utilization in most outpatient services and lower outpatient and total expenditures than VA-staffed community clinic patients after controlling for patient characteristics, health status, and the distance to the community clinic or the closest VAMC (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008).

The authors surmise that CBOCs staffed by VA providers have established relationships with VA providers and are sensitive to Veterans-specific issues (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008). However, providers in contract clinics may face integration challenges that complicate the referral process, such as familiarity with the VA electronic medical record and relationships with specialists at the parent facility.

Access. In 2005, Fortney, Maciejewski, Warren, and Burgess reviewed the effect of geographic distance via CBOC catchment areas on CBOC usage and overall primary care utilization (2005). This study focused on patients already seen in the VA system prior to CBOC availability to see if their utilization increased in view of their reduced distances for care. This shift in methodology addresses self-selection bias of patients seeking treatment at the CBOCs. This study finds that 18% of Veterans in CBOC catchment areas will change from VAMC to

CBOC in the 18 months after a new CBOC opens, and that CBOCs succeed in attracting new enrollees (Fortney, Maciejewski, Warren, & Burgess, 2005). For the established patients, there was a modest increase in primary care utilization but not specialty outpatient and inpatient utilization.

Quality. A later study on quality measures in CBOCs focused on flu shots for patient with COPD patients and retinal exams for patients with diabetes (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008). When adjusted for patient characteristics for age, gender, age and gender interaction, marital status, race, service connection, DCG risk score, means test status, and time, the authors did not find a significant difference in these quality measures. However, before the adjustment, there did appear to be differences (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008). Evaluation of quality using EPRP data for CBOC analysis faces an inherent limitation. According to Tony Stephens, the sample size for EPRP chart reviews studies at CBOCs tends to be very small (Stephens, 2008).

Costs. A study published in 2005 using 108 CBOCs compared VA utilization and expenditures for patients seen at VA-staffed versus contract community-based outpatient clinics (CBOCs) using 2000-2001 data (Liu, Maciejewski, Chapko, & Fortney, 2005). They find no substantial cost difference in contract versus VA-staffed CBOCs, but note that contract CBOC patients had less utilization for specialty care and other outpatient services. This comparative difference in specialty care utilization corresponded with contract CBOC patients having lower total outpatient expenditures per patient than VA-staffed CBOC patients.

A study published in 2007 provide follow-up analysis for utilization and expenditure data for patients receiving primary care solely at CBOCs, solely at VAMCs, and "crossover" patients, who received care at both using data from fiscal years 2000 and 2001 (Maciejewski, Perkins, Li,

Chapko, Fortney, & Liu, 2007). Such crossover patients appeared as CBOC patients in earlier studies. Based on unadjusted expenditures, CBOC patients had the lowest costs, and crossover patients, or patients receiving primary care at both the VAMC and CBOC, had the highest costs. The same trend held for average annual expenditures for primary care, total outpatient care, and inpatient care (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007).

Total outpatient expenditures averaged $2,092 for CBOC patients, $3,921 for VAMC patients, and $4,258 for crossover patients ($p < 0.001$). Average inpatient expenditures per year averaged $656 for CBOC patients, $1,867 for VAMC patients and $1,964 for crossover patients ($p < 0.001$). Overall expenditures averaged $2,748 for CBOC patients, $5,788 for VAMC patients, and $6,222 for crossover patients ($p < 0.001$) (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007).

The authors suggest that the differences found in 2007 versus the 2002 studies may stem from the larger sample sizes in later studies, inclusion of contract CBOCs, maturity of the accounting system, and later adjustments accounting for distance (Maciejewski, Perkins, Li, Chapko, Fortney, & Liu, 2007). Limitations from this study include limited use of random selection, unmeasured confounders (such as disease status), limited information on health outcomes and quality measures, and lack of information about non-VA health care use and cost.

While cost differences exist for patients in CBOC versus non-CBOC catchment area, the difference is not significant (Zhou, Qin, & Maciejewski, 2006). CBOC catchment areas are those where the CBOC zip code is closer to the patient's home than the parent facility's zip code.

Summary of later research findings. Thus far, CBOCs appear to be providing the services and capacity intended. However, there is some indication that patients getting care at contract CBOCs have less access to specialty care services than their VA-staffed counterparts. These

studies show the need for further research into differences of patient perceptions of care among contract and VA-staffed CBOCs. The lack of recent research into patient satisfaction scoring mechanisms such as the Survey of Healthcare Experiences of Patients (SHEP) scores makes this a topic deserving of attention.

CBOC Patient Distinctions

Various studies have differing definitions of a CBOC patient. For the 1998 evaluation project, the access review considered a patient to be CBOC patient if the Veteran received at least one episode of care at the CBOC – even if the Veteran also received primary care at the parent VA facility under the "intent to treat perspective" (Fortney J. , Borowsky, Maciejewski, & Chapko, 2002). Later studies made the distinction among patients receiving their primary care during a period solely at the CBOCs, VAMCs, or both as "crossover" patients. Another distinction of note is the organizational structure of CBOCs – as capitated contract or VA-staffed clinics.

Incentives

Liu et al point out the differing organizational effects of the VA's staffing a CBOC versus contracting out the services on a capitated basis.

> VA-staffed community clinics are functional extensions of VAMCs….These community clinics are typically staffed by providers from the parent VAMC who are sensitive to and aware of veteran-specific health issues. Contract community clinics, on the other hand, are non-VA community clinics that….do not have established relationships with medical center providers. This lack of integration complicates the referral process… (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008).

The characteristics of contract versus VA-staffed CBOC clinic patients have many similarities in terms of age, gender, DCG risk, distance to the CBOC, and percentage of service-related disability. However, patients seen at contract CBOCs were more likely to be married and

have incomes over the means test for co-pays (Liu, Chapko, Perkins, Fortney, & Maciejewski, 2008).

Purpose

The objective of this project is explore if there is a difference in results of patient satisfaction measures (using consolidated Survey of Healthcare Experiences of Patients (SHEP) Survey results) and access performance measures for wait times and missed clinic appointment opportunities (using consolidated performance measures reports) for patients receiving care in contract versus VA-staffed CBOCs. This study focuses on CBOCs that were operational at least six months prior to the beginning of FY07 and remained in operation through the end of FY08.

METHODS AND PROCEDURES

Data

The study draws from existing VA data sources. Patient satisfaction scores for access, continuity of care, courtesy, education and information, overall coordination, visit coordination, and patient preferences stem from quarterly reporting of scores from the Picker-based Survey of Health Experiences of Patients (SHEP). To complement SHEP scores, the VA site tracking (VAST) CBOC reports provide information about parent facility, network, CBOC type (contract or not), CBOC size, CBOC operational dates, and CBOC address. This analysis uses CBOC zip codes cross-referenced with other reports and census data to determine county, distance from the parent facility, and county median incomes and county populations.

Other data sources are the data cubes for wait times and missed opportunities maintained by the VISN Support Service Center (VSSC). The wait times data cube provides information at the division level for percents and numbers of patients who had to wait longer than 30 days to receive an appointment, along with gender, service connection, and enrollment category (United

States Department of Veterans Affairs, 2009) . The missed opportunities data cube provides cumulative information for patient no-shows and missed opportunities (no-shows, appointments cancelled by clinics or patients after the appointment time) for patient appointments as well as information about the total number of appointments (United States Department of Veterans Affairs). The missed opportunities data set provides percent of appointments reflecting missed opportunities by division, quarter, patient service connection, gender, and patient enrollment category.

This research uses summarized information available to all VA employees with computer access. This data does not contain patient-specific information thus cannot be used to identify individual patients directly or indirectly.

Types of Data

This project uses three sets of hypotheses (plus two post-hoc hypotheses) to look for differences in contract versus VA-staffed CBOCs. What all have in common is the use of the binary dependent/grouping variable of contract or VA-staffed CBOC. Hypotheses A-H, I-P, and S involve patient satisfaction. Hypotheses Q, R, T, and U consider access in terms of appointment wait times and missed opportunities. Contract versus VA-staffing of a CBOC serves as the grouping variable in Student's *t* tests for differences in mean scores, as well as the dependent variable in logistic regression models considering independent variables of scores as well as clinic and patient characteristics. This study uses simple *t* tests as well as binary logistic regression to look for a) differences for CBOC and VA-staffed patient scores and b) if scores, in addition to factors for CBOC, parent facility, and patient characteristics, contribute to a difference for VA versus contract CBOC.

Categorical

The CBOC type (contract or not), size, region, and parent facility complexity are categorical variables. For the access measures, gender, service connection (yes or no), and enrollment priority are categorical variables. The dependent categorical/grouping variable is the CBOC type.

Ratio

For the satisfaction hypotheses, the independent variables include Survey of Healthcare Experiences of Patients (SHEP) scores as numerical data reporting means. For hypotheses I-P and S, SHEP score logistic regression analysis also involves proportions for male respondents to the survey.

Using county-level data, the CBOC sites link to information on median incomes and population (using 2007 census data) and distance of the CBOC from the home facility.

The access measures (wait times of 30 days or less and missed opportunities) for appointments are percentages.

Hypotheses

Hypotheses A-H

The first hypotheses provide simple comparisons of the means from the SHEP scores for contract versus VA-staffed CBOCs using Student's *t* tests: Ha0: $uD = 0$ where $uD = u1 - u2$. Ha1: $uD \neq 0$. Hypothesis A-G test for differences between the quarterly median scores for patient perceptions of access (A), continuity of care (B), courtesy (C), education and information (D), emotional support (E), overall coordination (F), visit coordination(G), and patient preferences (H) using data from October 2006-June 2008.

Hypotheses I-P

The second hypotheses in the second set, I-P, are logistic regression models using a dummy variable indicating whether the patient received treatment at a contract or VA-staffed CBOC, with dependent variables adjusting for SHEP scores and case mix factors. The equation for the null hypothesis is H_{h0} = ln (estimated odds ratio) = $b_{H0,}$ that whether a not a patient receives care at a contract (0) versus VA-staffed CBOC is independent of case mix and patient perceptions across hypotheses for patient perceptions of access (I), continuity of care (J), courtesy (K), education and information (L), emotional support (M), overall coordination (N), visit coordination (O) and preferences (P).

The alternate hypothesis is that H_{h1} = ln (estimated odds ratio$_{)}$ = $b_{ho} + b_{h1}X_{h1i} + b_{h2}X_{h2i} + \ldots + b_{hk}X_{hki.}$ The binary variable for CBOC type - contract (1) or VA-staffed clinic (0), -is a function of CBOC size (*siz*), medical complexity grouping (mcg), CBOC county population, (*pop),* CBOC county income *(inc),* gender proportion (*genp*), proportion of responders who are Caucasian (*racp*), geographic region, (*reg*), distance from the parent facility (*dis*), and score (*sco*). The formal annotation for this model is *C = f (siz, mcg, pop, inc, genp, agep, racp, heap, reg, dis, sco),* where the median score varies among hypotheses I-P. (The patient satisfaction scores have already been adjusted for age and health status.)

Hypothesis Q-R

The third set of hypotheses addresses whether or not a patient received care at a contract or VA type of CBOC) with dependent variables adjusting for percentages of average wait times greater than 30 days, along with case mix factors. The equation for the null hypothesis is that H_{O0} = ln (estimated odds ratio) = $b_{O0,\ that}$ whether a not a patient receives care at a contract (0) versus VA-staffed CBOC is independent of case mix and average missed opportunity rates (hypothesis O), and percentage of patients receiving appointments within 0 to 30 days (hypothesis P). The

alternate hypothesis is that H_{h1} = ln(estimated odds ratio) = $b_{Oo} + b_{O1}X_{O1i} + b_{O2}X_{O2i} + \ldots + b_{Ok}X_{Oki}$, where the binary variable of CBOC care received at a contract (1) or VA-staffed clinic (0), is a function of CBOC size (*siz*), medical complexity grouping (mcg), CBOC county population, (*pop*), CBOC county income *(inc)*, gender (*gen*), region (*reg*), distance from the parent facility (*dis*), enrollment priority (*epr*), service connection category (*scc*), urban or rural status (uru), and percentage score weight (*scoW*). The formal annotation for this model is *C = f (siz, mcg, pop, inc, gen, reg, dis, epr, scc, uru, scoW),* where the percentage score varies among hypotheses Q-R.

Post-Hoc: Hypothesis S

The findings of Hypotheses I-P (satisfaction scores as independent variables for determining contract verses VA staffing) suggest that the model can be further improved through combining several of the satisfaction scores. The equation for the null hypothesis is that H_{h0} = ln (estimated odds ratio) = $b_{H0,\ that}$ whether a not a patient receives care at a contract (0) versus VA-staffed CBOC is independent of case mix and patient perceptions of access, continuity of care, courtesy, education and information, emotional support, overall coordination, and visit coordination. The alternate hypothesis is that H_{q1} = ln (estimated odds ratio) = $b_{qo} + b_{q1}X_{qi} + b_{q2}X_{q2i} + \ldots + b_{qk}X_{qki}$. The binary variable for CBOC type - contract (1) or VA-staffed clinic (0), -is a function of CBOC size (*siz*), medical complexity grouping (mcg), CBOC county population, (*pop*), CBOC county income *(inc)*, gender proportion (*genp*), region (*reg*), distance from the parent facility (*dis*), and score (*sco*). The formal annotation for this model is *C = f (siz, mcg, pop, inc, genp, reg, dis, sco),* where the median score varies among hypotheses.

Post-Hoc: Hypothesis T

To make the research into clinic wait times more consistent with review of satisfaction, we use Hypothesis T to look at the *t* test for the means of the wait times of contract versus VA-staffed CBOCs. In addition to providing consistency in this research, this query provides a "reasonableness test" for the results from the binary logistic regression model. The model for this post-hoc hypothesis is Ht0: $uD = 0$ where $uD = u1 - u2$. Ht1: $uD \neq 0$.

Post-Hoc: Hypothesis U

To make the research into missed opportunities more consistent with hypotheses A-H and T, this paper also considers the *t* test for the means of the percentage of missed opportunities for contract versus VA-staffed CBOCs. In addition to providing consistency in this research, this query provides a "reasonableness test" for the results from the binary logistic regression model. The model for this post-hoc hypothesis is Hu0: $uD = 0$ where $uD = u1 - u2$. Hu1: $uD \neq 0$.

Sampling Design

Hypotheses A-P and S use data from the Picker-based VA's Survey of Healthcare Experiences of Patients (SHEP) from fiscal years 2007-2008. The purpose of these surveys is to obtain data about ambulatory and inpatient care using standardized instruments and methodology throughout the system (United States Department of Veterans Affairs, 2007). Using a modified version of the D.A. Dilmon methodology for mail surveys, the administrators sample from all sites tracked with a five-character station code in the VA site tracking (VAST) list. They have adjusted the protocol to seek inclusion from primary care new patients, primary care established patients, and specialty care at each site, targeting 15 from each subgroup per month.

The administrators have found "non-response bias" based on age, gender, and CBOC size (United States Department of Veterans Affairs, 2007). Older Veterans were more likely to respond than younger Veterans were, and young female Veterans were more likely to respond

than young male Veterans were. The administrators also found that sites with lower volumes of patient were more likely to respond, and that primary care patients were more likely to respond than non-primary care recipients.

The administrators have already adjusted the scores based on the factors of age and health-reported health status. Therefore, these variables are not included in the model. The scores reflect "satisfaction rates:"

> The Veteran Healthcare Service Standards (VHSS) are those experiences that Veterans themselves identified as the priority components of high quality medical care in nation-wide focus groups of Veteran patients and their families. Descriptions of specific provider and staff behaviors associated with each VHSS were obtained during these focus groups and were used to construct the VA patient survey.
>
> Problematic, Non-Problematic, and Not Applicable response levels identified were identified for each question in SHEP. For a particular question on a respondent's survey, a satisfaction score was assigned to that question if there was no non-problematic response item indicated. For each respondent, the percentage of questions related to each VHSS answered in a way indicating that the Veteran had had a favorable or non-problematic experience was computed. For example, if a Veteran gave no-problem answers to three of the four questions related to Specialist Care, then that Veteran's score for that VHSS would be 75% (3 problems out of 4 = 3/4 = 75%). Thus, the VHSS score is a satisfaction rate (United States Department of Veterans Affairs, 2007).

The data collection for the access measures of wait times and missed opportunities is a complete accounting of medical records coded as completed appointments in a timely basis.

Research Design

This research offers new insight for VA management due to its use of recent SHEP scores to evaluate contract versus VA-run CBOCs. The plan for the first part of the analysis, supported by Dr. John Fortney in a telephone conversation, is to use SHEP scores to evaluate CBOCs (Fortney, Telephone Conversation, 2008). When evaluating primary care quality among contract and VA-staffed CBOCs, Liu, Chapko, Perkins, Fortney, and Maciejewski used logistic regression with reviews of patient characteristics such as age, gender, Diagnostic Cost Group

(DCG) patient complexity scores, percentage service related disability, and patient distance to the community clinic (2008). Earlier analysis used regression analysis with a dummy variable for contract versus VA-CBOC care along and case mix variables for age, gender, marital status, ethnicity, service-connection, and prior use of the CBOCs (Fortney, Borowsky, Maciejewski, & Chapko, 2002). With DCG adjustments beyond the scope of this study, this research uses parent facility complexity in lieu of patient case mix.

Data Collection

Data about CBOC characteristics comes from the FY07 CBOC Master List, CBOC VAST reports for fiscal years 2007-2008, VHA Office of the Assistant Deputy Under Secretary for Health for Policy and Planning (ADUSH reports), and a FY07 VISN by County Market Sector Report. Information about SHEP scores by CBOC comes from the Office of Quality and Performance (OQP) available on the VHA intranet, where reports are available by VISN and quarter at the division (CBOC) level. Data about missed opportunities and wait times comes from the ProClarity Data Cubes maintained by the VSSC. County-to-zip code crosswalk information comes from the VA's Planning Systems Support Group (PSSG).

Data Analysis

Excluded CBOCs

This report looks to community-based outpatient clinics (CBOCs) with a first recorded visit date before January 1, 2006, operational according the FY07 VA Site Tracking (VAST) report, and are not shared clinics between parent facilities. Of the 685 CBOCs listed on the fourth quarter VA Site Tracking (VAST) CBOC list, 106 are excluded from analysis due to lack of clarity about their CBOC distinction, not being open at least six months before the beginning of FY07 or during the analysis period, having shared parent facility status, or having fewer than

100 visits during FY07. This leaves 148 contract and 431 VA-staffed CBOCs proposed for analysis. A further 36 sites were excluded for not having at least 30 respondents per CBOC and/or not having satisfaction data for at least four of the seven quarters (first quarter 2007-third quarter 2008) under study. This left 543 CBOCs for study. An additional four CBOCs were excluded from the review of Hypothesis O (wait times) due to lack of wait-times data. Due to data availability, this project focuses on patient satisfaction data for October 2007-June 2008, wait times (access data) for October 2007-June 2008, and missed opportunity (access) data for October 2007- September 2008.

The exclusions of incomplete data left 94% of the sites for analysis of satisfaction-related hypotheses, and 93% of the proposed sites for access hypotheses. This study assumes that for wait times data, missing genders are male responses. This is a reasonable assumption 93% of the total records proposed for review were from male responders and only 1% records had unknown gender. In the access data, 2% had unknown values for enrollment priority. This study assigns enrollment priorities based on similar enrollment priorities of other records with similar service connections. For example, since 99.9% of the records with a service connection of 10% were enrollment priority 3, this study assigns enrollment priority 3 for those unknown priority patients with a SC of 10%. After these adjustments, only .006% of the records had enrollments/priority codes that were not obviously compatible. These were not changed.

Parameters and Operational Definitions of Variables

This research includes three sets of data analysis based on data sources reporting quarterly data from FY07 and FY08. Each set includes a dependent binary categorical variable for contract (0) or VA-staffed (1) CBOC. Each set also includes categorical values for the CBOC's size, the complexity of the CBOC's parent facility, the urban or rural status of the

CBOC's home county, and a factor identifying geographic location based on the VISN. (In this study, highly rural CBOCs fall under the rural CBOC category.) The information includes ratio data for the population of its home county and the median income for its home county. Each set includes factors for patient gender. The measures for scores and Veterans health vary. The SHEP scores already include adjustments for patient age and health status. For the wait times and missed opportunity access measures, the health indicators stem from reported service connection and enrollment priority for patients. The access score for wait times is the percentage of appointments made within 0 and 30 days of desired date for all clinics based on all appointments (United States Department of Veterans Affairs, 2009). The access scores for missed opportunities is the percentage of no-shows and appointments cancelled after the appointment times based on total completed and missed-opportunity appointments (United States Department of Veterans Affairs).

Contract CBOC. A contract CBOC is one listed on this report as clinic type C (for contract). VA clinics are those leased run by VA-staff (L) or VA-owned (V) according to the VAST report. Of the 580 CBOCs meeting the criteria for the study, 149 use contract services to provide care. For this analysis, the variable (*typ*) is binary with non-contract clinics (VA owned or leased space) = 0 and contract clinics = 1.

Size. The size variable (*siz*) comes from the CBOC's indication as small, medium, large, or extra large on the VAST report. These are coded as categorical variables of 0 (small), 1 (medium), 2 (large), and 3 (extra-large).

Medical Complexity Grouping (MCG). The variables used in determining the VHA's facility complexity grouping (MCG) include 2003 pro-rated persons seen at the facilities, fiscal year 2004 (FY04) levels of intensive care, Medicare relative risk score, FY04 resident slots, the

Herfindahl index for resident slots, average research dollars per pro-rated person, and average physician head count per pro-rated person (VHA Facility Complexity Workgroup, 2005). The MCG levels of 1a, 1b, 1c, 2, and 3 appear in the variable *mcg* with SPSS values of 0, 1, 2, 3, and 4. Complexity level 1 facilities are high complexity, with 1a facilities having the largest levels of volume, patient risk, teaching, and research, as well as level 5 intensive care units (ICUs) and the largest breadth of physician specialties (VHA Facility Complexity Workgroup, 2005). Complexity level 1b facilities have large levels of volume, risk, teaching, and research, with level 4 and 5 ICUs. Complexity level 1c facilities have the large levels of risk, volume, and teaching with level 4 ICUs. Complexity level 2 facilities are medium-complexity facilities with some teaching and level 3 and 4 ICUs. Complexity level 3 facilities have low levels of patient complexity, little or no research, and level 1 or 2 ICUs. For this analysis, 163 CBOCs are related to MCG 1a facilities, 106 to 1b facilities, 103 to 1c facilities, 92 to level 2 facilities, and 116 have level 3 parent VA facilities.

Population. The research cross-references the zip code of the CBOC address per the VAST report to census estimates of population by county for FY07 and presents the results in the ratio variable *pop*.

Median Income Estimates. The research cross-references the zip code of the CBOC address per the VAST report to census estimates of median income by county for FY07 and uses median state income county median incomes are not available for the ratio variable *inc*.

Gender. The SHEP score data presents gender as the percentage of male responders in the variable *genp*. For access data involving wait times and missed opportunities, gender stems from the quarterly demographics, with responses from females coded as 0 and males as 1 in the categorical variable *gen*.

Region. The preliminary plans were to use categorical variables for the Veteran integrated service networks (VISNs), in order to address clustering concerns. Subsequent analysis suggested instability in the model involved for VISNs 3, 10, and 18. To correct this issue, this project groups the VISNs into regional categories of Northeast (NE), Southeast (SE), North Central (NCtrl), South Central (SCtrl), Northwest (NW), and Southwest (SW). Figure 1 displays the assignments for variable *reg*:

Region	VISN	Veterans Integrated Service Network (VISN)
Northeast	VISN 01	VA New England Health Care System
Northeast	VISN 02	VA Healthcare Network Upstate New York
Northeast	VISN 03	VA New York/New Jersey Health Care System
Northeast	VISN 04	VA Stars and Stripes Health Care Network
Northeast	VISN 05	VA Capitol Healthcare Network
Northeast	VISN 10	VA Healthcare System of Ohio
Southeast	VISN 06	VA Mid-Atlantic Health Care Network
Southeast	VISN 07	VA Southeast Network
Southeast	VISN 08	VA Sunshine Health Care Network
North Central	VISN 11	Veterans in Partnership Network
North Central	VISN 12	VA Great Lakes Health Care System
North Central	VISN 15	VA Heartland Network
North Central	VISN 23	VA Midwest Health Care Network
South Central	VISN 09	VA Mid-South Healthcare Network
South Central	VISN 16	South Central VA Health Care Network
South Central	VISN 17	VA Heart of Texas Health Care Network
Northwest	VISN 19	VA Rocky Mountain Network
Northwest	VISN 20	VA Northwest Health Network
Northwest	VISN 21	VA Sierra Pacific Network
Southwest	VISN 18	VA Southwest Health Care Network
Southwest	VISN 22	VA Desert Pacific Healthcare Network

Figure 1. VA regions used for analysis.

Distance. The distance of the CBOCs from their parent facilities stems from the zip codes of the CBOCs and parent facility addresses. This distance appears in the ratio independent variable *dis*.

Age. The SHEP Scores already include adjustments for age and health reported health status. This information was not available for the access measures in hypotheses Q-R.

Race. The data involving SHEP (patient satisfaction) scores presents race as the proportion of Caucasian responders in variable *racp*. Race data is not available for the hypotheses involving wait times and missed opportunity (access-related) data in hypotheses Q-R.

Health. The SHEP Scores already include adjustments for age and health reported health status. In lieu of self-reported health status, the health status variable for hypotheses Q-R will be service connection and enrollment priority variables. Service connection is grouped categorically in variable *scc* as Non-Service Connected (0), Service-Connected 0% (1), service-connected 10-20% (2), service-connected 20-40% (3), service-connected 50-60% (4), service-connected 70-80% (5), and service-connected 90-100% (6). Another variable, enrollment priority (*epr*), reflects degree of service connection and/or income. Figure 2 explains the categories for enrollment priority.

Fact Sheet 164-2
March 2008

Enrollment Priority Groups

Priority Group	Definition
1	• Veterans with VA-rated service-connected disabilities 50% or more disabling • Veterans determined by VA to be unemployable due to service-connected conditions
2	• Veterans with VA-rated service-connected disabilities 30% or 40% disabling
3	• Veterans who are Former Prisoners of War (POWs) • Veterans awarded a Purple Heart medal • Veterans whose discharge was for a disability that was incurred or aggravated in the line of duty • Veterans with VA-rated service-connected disabilities 10% or 20% disabling • Veterans awarded special eligibility classification under Title 38, U.S.C., Section 1151, "benefits for individuals disabled by treatment or vocational rehabilitation"
4	• Veterans who are receiving aid and attendance or housebound benefits from VA • Veterans who have been determined by VA to be catastrophically disabled
5	• Nonservice-connected veterans and noncompensable service-connected veterans rated as 0% disabled by VA and whose annual income and net worth are below the VA national income threshold • Veterans receiving VA pension benefits • Veterans eligible for Medicaid programs
6	• World War I veterans • Compensable 0% service-connected veterans • Veterans exposed to ionizing radiation during atmospheric testing or during the occupation of Hiroshima and Nagasaki • Project 112/SHAD participants • Veterans who served in a theater of combat operations after November 11, 1998 as follows: o Veterans discharged from active duty on or after January 28, 2003, who were enrolled as of January 28, 2008 and veterans who apply for enrollment after January 28, 2008, for 5 years post discharge o Veterans discharged from active duty before January 28, 2003, who apply for enrollment after January 28, 2008, until January 27, 2011
7	• Veterans with income and/or net worth above the VA national income threshold and income below the geographic income threshold who agree to pay copays
8	• Veterans with income and/or net worth above the VA national income threshold and the geographic income threshold who agree to pay copays o Subpriority a: Noncompensable 0% service-connected veterans enrolled as of January 16, 2003, and who have remained enrolled since that date o Subpriority c: Nonservice-connected veterans enrolled as of January 16, 2003, and who have remained enrolled since that date o Subpriority e**: Noncompensable 0% service-connected veterans applying for enrollment after January 16, 2003 o Subpriority g**: Nonservice-connected veterans applying for enrollment after January 16, 2003

**** Note:** Veterans assigned to Priority Groups 8e or 8g are not eligible for enrollment as a result of the enrollment restriction which suspended enrolling new high-income veterans who apply for care after January 16, 2003. Veterans enrolled in Priority Groups 8a or 8c will remain enrolled and eligible for the full-range of VA health care benefits.

Figure 2. VA Healthcare Enrollment Priority Fact Sheet

Figure 3 below presents the ratio variables and their data sources.

Variable	Description	Source	Data Type
scoAcc	Access Score	SHEP Score data	Ratio
scoCoC	Continuity of Care Score	SHEP Score data	Ratio
scoCou	Courtesy Score	SHEP Score data	Ratio
scoEdu	Education and Information Score	SHEP Score data	Ratio
scoEmo	Emotional Support Score	SHEP Score data	Ratio
scoOvCor	Overall Coordination Score	SHEP Score data	Ratio
scoViCor	Visit Coordination Score	SHEP Score data	Ratio
scoPre	Preferences Score	SHEP Score data	Ratio
genp	Gender: % of Males Responding	SHEP Score data	Ratio
racp	Race: % Caucasians responding	SHEP Score data	Ratio
Resp#	Number SHEP Responses	SHEP Score data	Ratio
scoW	Wait Times: % <= 30 Days for appt Score	Wait Times	Ratio
TtlNS#	Total No Shows	Missed Opportunities	Ratio
TtlCO#	Total Checked Out Appointments	Missed Opportunities	Ratio
TtlAppt#	Number Total Appointments	Wait Times, Missed Opportunities	Ratio
scoMO	Missed Opportunities: % Score	Missed Opportunities	Ratio
pop	CBOC County Population	VAST List, Census	Ratio
inc	CBOC County Income	VAST List, Census	Ratio
dis	Distance of CBOC from Parent Facility	VAST List, Geographical data	Ratio

Figure 3. Ratio variables used in analysis.

Figure 4 below presents the categorical variables used, as well as their coding.

Variable	Description	Source	Data Type	Coding
gen	Gender	Wait Times, Missed Opportunities	Categorical	0 = female 1 = male
scc	Service Connection Category	Wait Times, Missed Opportunities	Categorical	1 = SC 10% 2 = SC 20% 3 = SC 30% 4 = SC 40% 5 = SC 50% 6 = SC 60% 7 = SC 70% 8 = SC 80% 9 = SC 90% 10 = SC 100% 11 = NSC
epr	Enrollment Priority	Wait Times, Missed Opportunities	Categorical	1 = Priority 1 2 = Priority 2 3 = Priority 3 4 = Priority 4 5 = Priority 5 6 = Priority 6 7 = Priority 7 8 = Priority 8
typ	CBOC Type (VA or Contract clinic)	VAST List	Categorical	0 = VA 1 = contract
siz	CBOC Size	VAST List	Categorical	0 = small 1 = medium 2 = large 3 = extra-large
mcg	Medical Center Grouping (Parent Facility)	VHA Med Center Complexity Workgroup	Categorical	0 = 1a (most complex) 1 = 1b 2 = 1c 3 = 2 4 = 3
uru	Urban/Rural Status of CBOC Zip	VAST List	Categorical	0 = Urban 1 = Rural
reg	Region of Parent Facility	VAST List, Geographical data	Categorical	30 = NE 31 = SE 32 = NW 33 = SW 34 = N Central 35 = S Central

Figure 4. Categorical variables used in analysis.

Ethical Considerations

This research uses de-identified, summary data reported from VA surveys and administrative databases. The Central Arkansas Veterans Health Care System (CAVHS) Institutional Review Board (IRB) granted this study exempt status on February 3, 2009 The CAVHS Research and Development (R&D) Committee provided the formal approval on February 23, 2009.

Expected Findings

The expected findings were that patient satisfaction scores would be statistically different for contract versus VA-run CBOCs and that the odds would be higher that contract CBOCs have lower patient satisfaction scores, longer wait times (lower percentage of appointments made within 30 days), and more missed opportunities than VA-run CBOCs.

RESULTS

CBOC Characteristics

From the original 685 CBOCs proposed for analysis, 543 had sufficient data for analysis. As seen in Table 1, contract CBOCs had higher median distances from their home facilities, but served populations with lower numbers and incomes. Table 1 provides more descriptive information about the included CBOCs in terms of size, contract/VA status, region, medical center grouping (complexity) of the parent facility, and urban/rural status of the CBOC. Figure 5 shows information about the CBOCs under analysis.

Table 1 CBOC Population and Distance Characteristics

Average Distance	VA	Contract	Grand Total
Urban	45.40	45.76	45.46
Rural	96.26	90.48	94.03
Highly Rural	830.50	146.81	602.60
Grand Total	63.38	69.85	65.00
Average 2007 County Population	VA	Contract	Grand Total
Urban	732,582.60	974,293.38	776,036.22
Rural	60,748.90	46,886.18	55,399.70
Highly Rural	62,572.00	5,806.00	43,650.00
Grand Total	542,761.40	483,011.04	527,796.30
Average 2007 Income	VA	Contract	Grand Total
Urban	26,372.68	24,302.61	26,000.54
Rural	24,059.07	23,071.20	23,677.88
Highly Rural	22,685.50	22,497.00	22,622.67
Grand Total	25,712.21	23,646.46	25,194.82

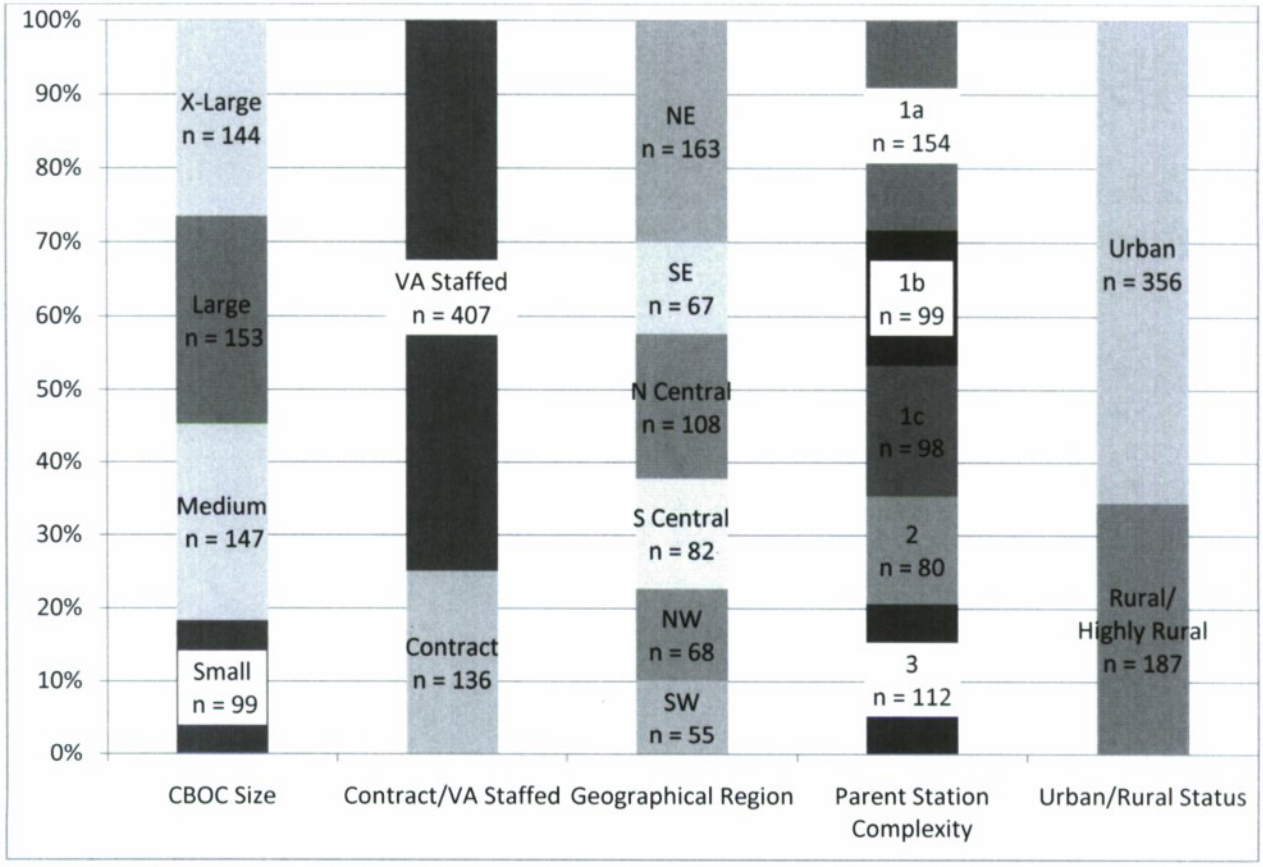

Figure 5. CBOC and Parent Station Characteristics

Hypotheses

This project proposes the use of sixteen hypotheses and adds three post-hoc hypotheses. Figure 6 provides a guide to the explorations.

Hypothesis	Appendix	Data Source	Test
A	B	SHEP Scores	*t* test Access
B	B	SHEP Scores	*t* test Continuity
C	B	SHEP Scores	*t* test Courtesy
D	B	SHEP Scores	*t* test Education and Information
E	B	SHEP Scores	*t* test Emotional Support
F	B	SHEP Scores	*t* test Overall Coordination
G	B	SHEP Scores	*t* test Visit Coordination
H	B	SHEP Scores	*t* test Preferences
I	C	SHEP Scores	Log Regression Access
J	D	SHEP Scores	Log Regression Continuity
K	E	SHEP Scores	Log Regression Courtesy
L	F	SHEP Scores	Log Regression Education and Info
M	G	SHEP Scores	Log Regression Emotional Support
N	H	SHEP Scores	Log Regression Overall Coordination
O	I	SHEP Scores	Log Regression Visit Coordination
P	J	SHEP Scores	Log Regression Preferences
Q	K	Wait Times	Log Regression Wait Times
R	L	Missed Opportunities	Log Regression Missed Opportunities
S	M	SHEP Scores	Post Hoc: Log Regression including Access, Continuity, Courtesy, Education and Info, Emotional Support, Overall Coordination, Visit Coordination, Preferences
T		Wait Times	Post Hoc: *t* test Wait Times
U		Missed Opportunities	Post Hoc: *t* test Missed Opportunities

Figure 6. Guide to Hypotheses and Appendices

Hypotheses A-H

Based on analysis of histograms for weighted satisfactions scores (provided in Appendix A), the distributions do not violate the assumption of normality to the extent of precluding the application of Student's *t* tests for Hypotheses A-G.

This study first looks for differences in median satisfaction scores for VA versus contract-based CBOCs, with cases weighted based on number of responders at the CBOC, fiscal year, and fiscal quarter level.

Based on the results of group statistics and independent samples *t* tests for equality of means, there are significant differences in the weighted mean satisfaction scores. Thus, we reject the null hypotheses A-G. As shown in Table 2, the mean scores for VA-staffed CBOCs are higher for continuity of care, courtesy, education and information, emotional support, and overall coordination. Contract CBOCs report higher satisfaction scores for access and visit coordination. The largest difference is in continuity of care, where VA-staffed CBOCs report 8.6 percentage-point higher scores. Figure 7 presents this information graphically.

The Performance Measure targets for overall patient satisfaction for ambulatory care have been 77% for FY07 and 79% for FY08 (Office of Quality and Performance, 2006) (Office of Quality and Performance, 2007). The FY09 target for overall outpatient quality is 51%, with the VA's transition from a Picker-based survey to a CAHPS-based system one reason for the change (Wright, 2009). Trending of FY09 results with prior years will not be possible for VA patient satisfaction scores. Appendix B contains the SPSS outputs for Hypotheses A-G.

Table 2 *t* Test Results for Hypotheses A-G

				t test	
CBOC SHEP Scores 1st Qtr FY07 - 3rd Qtr FY08	Hypothesis	VA Mean	Contract Mean	Mean Difference	Significance
Access	A	87.284	87.5644	(0.2803)	0
Continuity	B	74.7566	66.1538	8.6028	0
Courtesy	C	95.9024	95.7771	0.1253	0
Education/Information	D	74.7921	73.6817	1.1105	0
Emotional Support	E	85.2471	84.4	0.8472	0
Overall Coordination	F	78.7576	77.0757	1.6819	0
Visit Coordination	G	87.3355	87.4696	(0.1341)	0
Preferences	H	83.7688	82.6857	1.0831	0

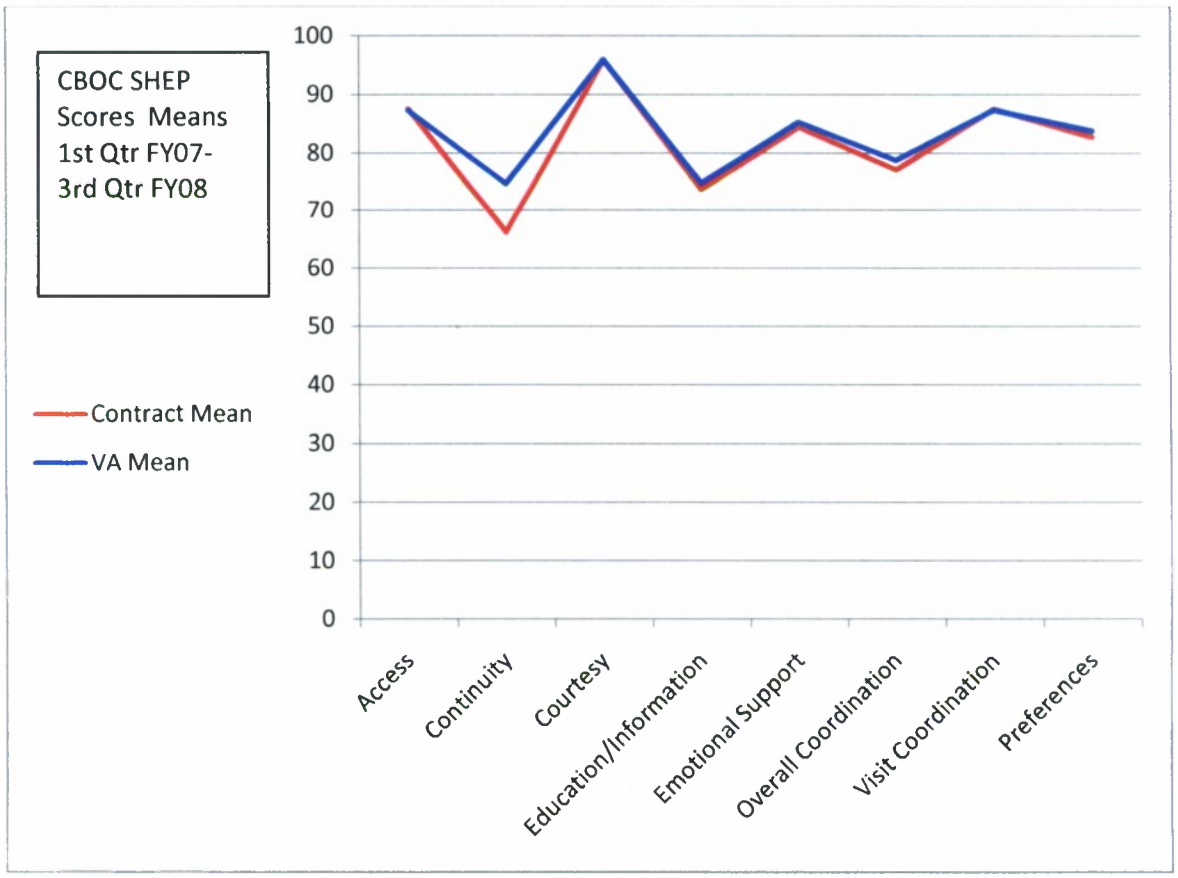

Figure 7. Comparison of SHEP Score Means for VA versus Contract CBOCs

Hypotheses I-P

Hypotheses I-P look at the same sets of scores as A-G, but this time the contract versus VA-staffing status of the CBOC is the binary dependent variable (*typ*). The independent variables include the satisfaction scores (*Sco);* proportion of males responding (*genp*); proportion of Caucausians responding (*racp*); CBOC size (*siz*); parent facility complexity (*mcg*); CBOC county population (*pop*), income (*inc*), and urban/rural status (*uru*); the geographical region of the facility (*reg*); and the distance of the CBOC from the parent facility (*dis*). The weighting factor is the number of responses to the survey.

These hypotheses included variables for both urban/rural status of the community as well as population of the county. While these variables may seem to convey similar information, the model does not improve by using one of these two population-related variables. The model is better with both variables in each of these hypotheses.

Acceptance or rejection of logic regression-based hypotheses depends on the significance of the findings. Indications of usefulness include classification improvements the extent that the models explain variance. The case-processing table, shown in Table 3, shows no missing cases in the analysis. Table 5 shows the encoding of the binary independent variables. The results of the logistic regression equation are applicable to the predictive possibility of the value coded as 1: Contract VA (variable *typ*).

Table 3 Case Processing Summary for Hypotheses I-P

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 4 summarizes the classification improvements, model significance, and Nagelkerke R Square calculations for Hypotheses I-P. We must reject each of the null hypotheses that the satisfaction scores do not affect the determination of contract versus VA-staffing for CBOCs because the models display not only significance, but also improvements in classification. Of these, the greatest improvement in classification occurs in Hypothesis I, which includes continuity of care as an independent variable (*scoCOC*). The calculation tables are in the appendices referenced in Table 5. Please note that the betas differ, with continuity, education and information, emotional support, and overall coordination having negative effects on the predictive possibilities for contract VA status.

Table 4 Classification Changes for Hypotheses I-P

Satisfaction Score	Hypothesis	Appendix	Original Class.	Updated Class.	Class. Difference	Model Sign.	Nagelkerke R Square	Beta of Score
Access	I	C	0.754	0.814	0.06	0	0.31	0.032
Continuity	J	D	0.754	0.83	0.076	0	0.43	-0.088
Courtesy	K	E	0.754	0.816	0.062	0	0.307	-0.014
Education and Information	L	F	0.754	0.818	0.064	0	0.311	-0.024
Emotional Support	M	G	0.754	0.819	0.065	0	0.311	-0.016
Overall coordination	N	H	0.754	0.814	0.06	0	0.328	-0.061
Visit Coordination	O	I	0.754	0.817	0.063	0	0.307	-0.006
Preferences	P	J	0.754	0.817	0.063	0	0.314	-0.044

Table 5 presents the results from Hypothesis J for Continuity of Care. As indicated from the B (Beta) values below the variable *scoCOC* (score for continuity of care) has a negative effect on the predictive possibility of a CBOC having contract (1) status.

Table 5 Variables in the Equation: Binary Logistic Regression for Hypothesis J: Coordination of Care

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			14676.762	3	.000	
	siz(1)	2.403	.021	13601.937	1	.000	11.056
	siz(2)	1.224	.018	4423.100	1	.000	3.402
	siz(3)	.776	.017	2098.212	1	.000	2.172
	mcg			6676.628	4	.000	
	mcg(1)	.947	.018	2891.100	1	.000	2.578
	mcg(2)	.064	.020	10.728	1	.001	1.066
	mcg(3)	1.217	.018	4739.903	1	.000	3.376
	mcg(4)	.854	.019	2128.112	1	.000	2.348
	uru(1)	-.451	.013	1139.450	1	.000	.637
	pop	.000	.000	216.383	1	.000	1.000
	inc	.000	.000	5044.258	1	.000	1.000
	genp	5.582	.228	598.309	1	.000	265.713
	racep	4.005	.068	3514.732	1	.000	54.869
	reg			12777.809	5	.000	
	reg(1)	-1.519	.019	6476.263	1	.000	.219
	reg(2)	-.233	.020	131.939	1	.000	.792
	reg(3)	-2.000	.025	6480.530	1	.000	.135
	reg(4)	-.964	.024	1591.432	1	.000	.381
	reg(5)	-1.811	.020	8280.120	1	.000	.164
	dis	.000	.000	14.040	1	.000	1.000
	scoCoC	-.088	.001	26762.622	1	.000	.915
	Constant	-1.441	.228	39.889	1	.000	.237

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoCoC.

Hypothesis Q

Hypotheses Q looks for a difference in VA-staffed versus contract CBOCs considering percentage of appointments made within 30 days as well as other independent variables for patient and clinic characteristics. The independent variables include the wait times percentage (*ScoW);* gender of patients (*gen*); CBOC size (*siz*); parent facility complexity (*mcg*); CBOC county population (*pop*), income (*inc*), and urban/rural status (*uru*); the geographical region of the facility (*reg*); the distance of the CBOC from the parent facility (*dis*); the patient's service

connection category (*scc*); and the patient's enrollment priority (*epr*). The weighting factor is the total number of appointments.

The descriptive statistics show that ten percent of the wait times values fall in the zero to 94.22% range of meeting the 30-day target. The data are right-skewed, with a median of 98.64%.

Table 6 Statistics for ScoW: Percentage of Wait Times Less Than or Equal To 30 Days

N	Valid	17037424
	Missing	0
Mean		.9760
Median		.9864
Mode		1.00
Percentiles	10	.9422
	20	.9628
	25	.9690
	30	.9736
	40	.9811
	50	.9864
	60	.9905
	70	.9941
	75	.9959
	80	.9978
	90	1.0000

The FY2007 Performance Measure Table of Targets and Measures provides perspective for the mean. The Performance Measures consider at the wait times for established and new patients (% seen by an acceptable provdier within 30 days) for patients seen in primary care and mental health clinics. To meet targets in FY2007, new patients had to be seen within 30 days 82% of the time for primary care and 88% for individual mental health clinics. Established patients had to be seen within 30 days 92% of the time to be acceptable in both clinical areas (Office of Quality and Performance, 2006). For FY2008, the target was 90% for new patients (United States Department of Veterans Affairs: Office of Budget, 2008; Office of Quality and Performance, 2007). By fiscal year 2009, the target increased to 99% for both new and established patients (Veterans Health Administration, 2008).

Acceptance or rejection of logic regression-based hypotheses depends on the significance of the findings. As seen in Table 7, this model has significance with $X^2=2495392, p<.05$. As reflected in Table 8, this model explains 27.6% of the variance in the exploration of differences in wait times in terms of using this and other variables to predict the contract versus VA-staffed status of a CBOC. Another result is the classification improvement from .893 (as seen in Table 9) to .90 (as seen in Table 10). Thus, we reject the null hypothesis of no difference for variables, including wait times, in predicting the contract versus VA-staffing of a CBOC. The beta of the *ScoW* (wait-times score) is positive, indicating that a higher (successful) wait times percentage is a positive indicator of the contract status of the CBOC. However, much of the variance remains unexplained. Challenges with this model include the left skew of the data set and the lack of data about health status, age, and race of the patients.

The original hypothesis included variables for both county population and the urban/rural status of the CBOC community and showed a classification improvement from .893 to .899. Removal of the variable for population improved the classification to .90. When using only three quarters of FY2008 data, the classification improves from .892 to .898. This test using only FY2008 data supports the use of the available FY2008 data for Hypothesis R.

Table 7 Omnibus Tests of Model Coefficients for Hypothesis Q: Wait Times

		Chi-square	df	Sig.
Step 1	Step	2494187.037	35	.000
	Block	2494187.037	35	.000
	Model	2494187.037	35	.000

Table 8 Model Summary for Hypothesis Q: Wait Times

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9071903.502(a)	.136	.276

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9 Original Classification Table for Hypothesis Q: Wait Times

Observed			Predicted: CBOC Type (VA or Contract) 0 VA	1 Contract	Percentage Correct
Step 0	CBOC Type (VA or Contract)	0 VA	15220556	0	100.0
		1 Contract	1816868	0	.0
	Overall Percentage				89.3

a Constant is included in the model.
b The cut value is .500

Table 10 Resultant Classification Table for Hypothesis Q: Wait Times

Observed			Predicted: CBOC Type (VA or Contract) 0 VA	1 Contract	Percentage Correct
Step 1	CBOC Type (VA or Contract)	0 VA	15020943	199613	98.7
		1 Contract	1507803	309065	17.0
	Overall Percentage				90.0

a The cut value is .500

The effects of the variables in the equation on the determination of positive predictive value are in Table 11. Using the exponent of the beta (expB) as a guide, we see that the score for wait times of 30 days or less is a positive predictor for contract status.

Table 11 Variables in the Resultant Equation for Hypothesis Q: Wait Times

		B	S.E.	Wald	df	Sig.	Exp(B)
Step1(a)	siz			761910.455	3	.000	
	siz(1)	2.957	.004	551497.523	1	.000	19.246
	siz(2)	1.820	.003	382082.458	1	.000	6.171
	siz(3)	1.592	.002	490527.415	1	.000	4.914
	mcg			194955.320	4	.000	
	mcg(1)	.376	.003	14938.433	1	.000	1.456
	mcg(2)	-.566	.004	24146.399	1	.000	.568
	mcg(3)	.825	.003	68800.434	1	.000	2.283
	mcg(4)	.600	.003	33968.926	1	.000	1.822
	scc			2316.372	11	.000	
	scc(1)	-.115	.005	493.816	1	.000	.891
	scc(2)	-.087	.011	69.035	1	.000	.916
	scc(3)	-.122	.011	126.953	1	.000	.885
	scc(4)	-.468	.093	25.555	1	.000	.626
	scc(5)	-.511	.093	30.460	1	.000	.600
	scc(6)	-.434	.078	30.602	1	.000	.648
	scc(7)	-.494	.078	39.805	1	.000	.610
	scc(8)	-.575	.078	53.841	1	.000	.563
	scc(9)	-.638	.078	66.224	1	.000	.528
	scc(10)	-.596	.079	57.572	1	.000	.551
	scc(11)	-.651	.078	69.021	1	.000	.522
	epr			19656.705	7	.000	
	epr(1)	.003	.078	.002	1	.969	1.003
	epr(2)	.116	.093	1.576	1	.209	1.123
	epr(3)	-.229	.010	522.571	1	.000	.795
	epr(4)	-.457	.008	3111.009	1	.000	.633
	epr(5)	-.322	.002	18364.538	1	.000	.724
	epr(6)	-.263	.006	2173.087	1	.000	.769
	epr(7)	-.164	.006	752.049	1	.000	.849
	pop	.000	.000	1174.336	1	.000	1.000
	uru(1)	-.608	.002	67035.139	1	.000	.544
	inc	.000	.000	201678.407	1	.000	1.000
	gen(1)	-.135	.004	1082.633	1	.000	.873
	reg			555487.651	5	.000	
	reg(1)	-.538	.003	33828.642	1	.000	.584
	reg(2)	1.178	.003	186012.605	1	.000	3.247
	reg(3)	-1.432	.004	102566.330	1	.000	.239
	reg(4)	-.269	.004	4043.304	1	.000	.764
	reg(5)	-.240	.003	5477.116	1	.000	.787
	dis	.000	.000	272.227	1	.000	1.000
	scoW	3.635	.031	13665.130	1	.000	37.892
	Constant	-3.087	.031	9653.014	1	.000	.046

a Variable(s) entered on step 1: siz, mcg, scc, epr, pop, uru, inc, gen, reg, dis, scoW.

Hypothesis R

Hypothesis R now looks to access in terms of utilization of capacity. Missed opportunities are "no-show" appointments (where patients do not show up for appointments) as well as clinic appointments cancelled after-the-fact by patients or the clinic (United States Department of Veterans Affairs). The independent variables include the missed opportunities percentage (*ScoMO);* gender of patients (*gen*); CBOC size (*siz*); parent facility complexity (*mcg*); CBOC county population (*pop*), income (*inc*), and urban/rural status (*uru*); the geographical region of the facility (*reg*); the distance of the CBOC from the parent facility (*dis*); the patient's service connection category (*scc*); and the patient's enrollment priority (*epr*). The weighting factor is the total number of appointments.

Due to the archival of FY2007 data, this hypothesis uses four quarters of data from FY2008. (The other hypotheses use seven periods of data – 1st Quarter FY07-3rd Quarter FY08.) The similar results for hypotheses I-Q and R in using three quarters of 2008 validate this effort, and this difference in data periods is a documented limitation later in this study. The weighting factor is the number of appointments. The descriptive statistics in Table 12 show that ten percent of the wait times values fall in the 0 to 6% rate for missed opportunities. The data are left-skewed, with a median and mode of 11%.

In FY2007, the missed opportunities targets limits were no more than 12% for primary care and 16% for individual mental health care (Office of Quality and Performance, 2006). For FY08 and FY09, the target limits were 11% for primary care and 17% for mental health clinics (United States Department of Veterans Affairs Office of Inspector General, 2008) (Office of Quality and Performance, 2009).

Table 12 Statistics for ScoMo: Missed Opportunities

N	Valid	10114542
	Missing	0
Mean		.1166
Median		.1100
Mode		.11
Percentiles	10	.0600
	20	.0700
	25	.0800
	30	.0900
	40	.1000
	50	.1100
	60	.1200
	70	.1400
	75	.1400
	80	.1500
	90	.1800

Acceptance or rejection of logic regression-based hypotheses depends on the significance of the findings. As seen in Table 13, this model has significance with $X^2=1487854$, $p<.05$. This model has the same classification improvement and Nagelkerke R Square when using both community population and urban/rural status of the CBOC as using urban/rural status alone. The classification improvement decreases slightly (from .902 to .901) when excluding the urban/rural status variable. Thus, this model uses both variables in using the score for missed opportunities (*scoMO*) in predicting contract versus VA-staffing of a CBOC.

Table 13 Omnibus Tests of Model Coefficients for Hypothesis R: Missed Opportunities

		Chi-square	df	Sig.
Step 1	Step	1487854.098	35	.000
	Block	1487854.098	35	.000
	Model	1487854.098	35	.000

Table 14 Model Summary for Hypothesis R: Missed Opportunities

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	5267626.568(a)	.137	.281

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 15 Original Classification Table for Hypothesis R: Missed Opportunities

Observed			Predicted		
			VA-Staffed or Contract		Percentage Correct
			0 VA-Staffed	1 Contract	
Step 0	VA-Staffed or Contract	0 VA-Staffed	9061855	0	100.0
		1 Contract	1052687	0	.0
	Overall Percentage				89.6

a Constant is included in the model.
b The cut value is .500

Table 16 Resultant Classification Table for Hypothesis R: Missed Opportunities

Observed			Predicted		
			VA-Staffed or Contract		Percentage Correct
			0 VA-Staffed	1 Contract	
Step 1	VA-Staffed or Contract	0 VA-Staffed	8937198	124657	98.6
		1 Contract	866257	186430	17.7
	Overall Percentage				90.2

a The cut value is .500

Table 17 Variables in the Resultant Equation for Hypothesis R: Missed Opportunities

		B	S.E.	Wald	df	Sig.	Exp(B)
Step1a	reg			319503.882	5	.000	
	reg(1)	-.522	.004	18431.120	1	.000	.593
	reg(2)	1.172	.004	111860.998	1	.000	3.227
	reg(3)	-1.388	.006	54324.057	1	.000	.250
	reg(4)	-.275	.006	2443.210	1	.000	.760
	reg(5)	-.319	.004	5551.582	1	.000	.727
	dis	.000	.000	78.593	1	.000	1.000
	siz			486155.676	3	.000	
	siz(1)	2.999	.005	327395.884	1	.000	20.074
	siz(2)	1.880	.004	235735.209	1	.000	6.553
	siz(3)	1.720	.003	335990.974	1	.000	5.583
	mcg			116257.571	4	.000	
	mcg(1)	.417	.004	10641.383	1	.000	1.517
	mcg(2)	-.526	.005	11692.225	1	.000	.591
	mcg(3)	.909	.004	47288.778	1	.000	2.482
	mcg(4)	.618	.004	20411.940	1	.000	1.855
	uru(1)	-.613	.003	39008.476	1	.000	.542
	pop	.000	.000	1331.798	1	.000	1.000
	inc	.000	.000	118600.352	1	.000	1.000
	epr			16960.710	7	.000	
	epr(1)	-.026	.109	.058	1	.809	.974
	epr(2)	.246	.120	4.214	1	.040	1.279
	epr(3)	-.299	.013	494.503	1	.000	.741
	epr(4)	-.486	.011	2106.120	1	.000	.615
	epr(5)	-.417	.003	16074.585	1	.000	.659
	epr(6)	-.408	.007	3210.440	1	.000	.665
	epr(7)	-.199	.008	565.256	1	.000	.820
	scc			1355.259	11	.000	
	scc(1)	-.149	.007	481.545	1	.000	.861
	scc(2)	-.092	.014	42.448	1	.000	.912
	scc(3)	-.132	.014	83.467	1	.000	.877
	scc(4)	-.674	.120	31.501	1	.000	.510
	scc(5)	-.704	.120	34.350	1	.000	.495
	scc(6)	-.468	.109	18.403	1	.000	.626
	scc(7)	-.493	.109	20.434	1	.000	.611
	scc(8)	-.546	.109	25.119	1	.000	.579
	scc(9)	-.634	.109	33.814	1	.000	.530
	scc(10)	-.559	.109	26.166	1	.000	.572
	scc(11)	-.645	.109	35.065	1	.000	.525
	gen(1)	-.228	.005	1878.187	1	.000	.796
	ScoMO	2.398	.016	21508.916	1	.000	11.004
	Constant	.188	.010	378.144	1	.000	1.207

a Variable(s) entered on step 1: reg, dis, siz, mcg, uru, pop, inc, epr, scc, gen, ScoMO.

For due diligence about the possible redundancy of the population and urban/rural status variables are redundant, exploratory analysis excluded population with urban/rural status remaining with no change in classification (90.2). Exclusion of urban/rural status using the population variable finds a slightly-less improved classification of 90.1%.

The Nagelkerke R Square of .281 and as well as the improvement in classification from .896 to 90.2 support the potential usefulness of this model in explaining some variance and improving the predictive possibility of the variables.

Hypothesis S

Hypotheses S is a post-hoc hypothesis following the SHEP score analysis that explores the effects of using the satisfaction score variables from Hypotheses I-P as independent variables in the same equation. As seen in Appendix M, the independent variables also include the proportion of males responding (*genp*); CBOC size (*siz*); parent facility complexity (*mcg*); CBOC county population (*pop*), income (*inc*), and urban/rural status (*uru*); the geographical region of the facility (*reg*), and the distance of the CBOC from the parent facility (*dis*). The weighting factor is the number of responses to the survey. In a combined model, the betas of the variables change from their values in independent hypotheses I-P. In the presence of the combined model, we see that continuity (*scoCOC*), education and information (*scoEdu*), and Overall Coordination (*scoOvCor*) remain negative predictor of a CBOC's contract status. Access (*scoAcc*) and visit coordination (*scoViCor*) remain positive predictors of contract status of a CBOC, and courtesy (*scoCou*) and emotion support (*scoEmo*) become opposite influences of their independent analysis. As seen in Table 18, this combined model improves classification from .754 to .833, which is a slightly improved classification of Hypothesis I (SHEP Score for Continuity) at .83.

Table 18 Beta of Satisfaction Scores in Individual (Hypotheses I-P) versus Combined Logistic Regression Model (Hypothesis S)

Satisfaction Score	Hypothesis	Appendix	Original Class.	Updated Class. - Individual Model	Updated Class.- Combined model	Individual Model Beta	Combined Model Beta
Access	I	C	0.754	0.814		0.032	0.039
Continuity	J	D	0.754	0.830		-0.088	-0.102
Courtesy	K	E	0.754	0.816		-0.014	-0.03
Education and Information	L	F	0.754	0.818		-0.024	-0.015
Emotional Support	M	G	0.754	0.819		-0.016	0.051
Overall coordination	N	H	0.754	0.814		-0.061	0.003
Visit Coordination	O	I	0.754	0.817		-0.006	0.083
Preferences	P	J	0.754	0.817		-0.044	-0.044
Combined Model	S	M	0.754		0.833		

In order to see how these results would vary using only FY08 data, we tested this finding using only three quarters of data for FY08. In this case, the classification improved from .752 to .83, which still shows improvement and supports the use of four quarters FY08 data for hypothesis S involving missed opportunities.

Hypothesis T

Hypotheses T is a post-hoc hypothesis following the wait times analysis that explores simple *t* tests despite the negative skew and lack of normality in the wait times frequencies. This is done to perform a reasonableness check on the finding contract CBOCs have a higher predictive possibility for meeting the 30 day target for new appointments. The post-hoc Hypothesis T further explores the difference found in *t* test statistics where contract CBOCs having higher weighted means. The calculated means, as shown in Table 19, have a small but significant difference, as shown in Table 20.

Table 19 Mean Values from Hypothesis T: Percentage Wait Times Less Than or Equal to 30 Days

	typ CBOC Type (VA or Contract)	N	Mean	Std. Deviation	Std. Error Mean
scoW Wait Less than or equal 30 Days (percentage)	0 VA	15220556	.9753	.03396	.00001
	1 Contract	1816868	.9818	.03295	.00002

Table 20 Independent Samples *t* Test for Means in Hypothesis T: Wait Times

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
		F	Sig.	t	df	Sig. 2-tailed	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
scoW Wait Less than or equal 30 Days (%)	Equal variances assumed	4673.185	.000	-247.229	17037422	.000	-.00657	.00003	-.00662	-.00652
	Equal variances not assumed			-253.151	2302315.120	.000	-.00657	.00003	-.00662	-.00652

Hypothesis U

Hypotheses U is a post-hoc hypothesis following the missed opportunities analysis that explores simple *t* tests despite the positive skew in the wait times frequencies. This is done to perform a reasonableness check on the finding contract CBOCs have a higher predictive possibility having higher missed opportunity rates for appointments. The post-hoc Hypothesis U further explores the difference found in *t* test statistics where CBOCs having higher weighted means. The difference is significant but small.

Table 21 Mean Values from Hypothesis U: Missed Opportunities

	typ VA-Staffed or Contract	N	Mean	Std. Deviation	Std. Error Mean
ScoMO Score for Missed Opportunities (Percentage of Checked out plus MO)	0 VA-Staffed	9061855	.1160	.06004	.00002
	1 Contract	1052687	.1213	.07191	.00007

Table 22 Independent Samples *t* Test for Means in Hypothesis U: Missed Opportunities

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
		Lower	Upper	Lower	Upper	Lower	Upper	Lower	Upper	Lower
ScoMO Score for Missed Opportunities (%)	Equal variances assumed	27774.395	.000	-84.381	10114540	.000	-.00533	.00006	-.00546	-.00521
	Equal variances not assumed			-73.193	1229160.909	.000	-.00533	.00007	-.00548	-.00519

DISCUSSION

Patient Satisfaction

Hypotheses A-H compare the means of patient satisfaction (SHEP) scores from October 2006-June 2008 for contract versus VA-staffed CBOCs. Of these, the VA-staffed CBOCs have higher scores for continuity of care, courtesy, education, emotional support, overall coordination, visit coordination, and preferences. Moreover, the score for continuity of care has the greatest difference in means. CBOC care provided on contract had higher scores for access. These results are summarized in Table 2.

Hypotheses I-P use logistic regression to separately consider patient satisfaction categories and account for differences in clinic, population and parent station characteristics. In these hypotheses, the independent variables are: CBOC size; medical center grouping

(complexity) of the parent facility; urban/rural status of the CBOC; population and income of the CBOC community; proportion of Caucasians responding to the survey; proportion of males responding to the survey; geographic region of the CBOC; distance of the CBOC from the parent facility; and a patient satisfaction score. The categorical dependent variable is the contract versus VA-staffing of the CBOCs. In the model equation, the betas of the independent variables convey the effect of the scores in the model. The changes in classification (predictive possibility) reflect if there is a difference in contract versus VA-staffed CBOCs. All of these hypotheses show improved classification in the models. When considering the SHEP scores separately, continuity of care shows the greatest improvement in classification and is a negative predictor of a contract versus VA-staffed CBOC.

Post-hoc hypothesis S builds a combined model involving not only patient and population characteristics, but also patient satisfaction (SHEP) scores for access, continuity, courtesy, education and information, emotional support, overall coordination, visit coordination, and preferences as independent variables. The combination of all considered satisfaction scores further improves classification, but reflect a change in the effects of the betas for emotional support, overall coordination, and visit coordination. The betas are negative for the elements of continuity, courtesy, education and information, and overall coordination in the combined model. This supports the findings of the *t* tests that these are negative predictors of a contract versus VA-staffed CBOC. Similar to the individual *t* test results, access is a positive predictor for contract status of a CBOC. The combined model portrays a different view of emotional support and visit coordination, suggesting that these variables may actually be positive (versus negative) predictors of a contract CBOC.

Access

The improved classification found in Hypothesis Q indicates that there is a difference for contract versus VA-staffed CBOCs in percentage of appointments made within 30-days. The positive beta of the score for the wait times indicates the positive relationship between higher percentage of appointments made within the period and the contract status of a CBOC. The result of Post-Hoc hypothesis T supports this conclusion. For Post-Hoc Hypothesis T, we must reject the null hypothesis of no difference in means, because the contract CBOCs have a higher mean of percentage of appointments made within 30 days (.9818) than the VA-staffed CBOCs (.9753).

The patient satisfaction measure, analyzed in hypotheses A and I, also pertains to access. Hypothesis A reviews the mean differences in patient perceptions of access provided by clinics. The *t* test finds that patients have a higher satisfaction rate with the access provided by contract (87.5644) versus VA-staffed clinics (87.284). Moreover, the logistic regression model used in Hypothesis I also finds a difference, with higher access scores having a positive beta, or influence, on the predictive possibility of the CBOC providing care through contract. The combined satisfaction model, from hypothesis R, also has a positive beta for the access score of patient satisfaction.

Another aspect of access is the use of available resources, as measured in the missed opportunities percentage. For this measure of access, VA-staffed CBOCs performed better. Hypothesis R, which used a logistic regression model, finds a difference in contract versus VA-staffed clinics where the score for missed opportunities (lower is better) is a positive predictor of contract CBOCs. This is supported by the Post-Hoc hypothesis U which finds a statistically

significant difference in the mean missed-opportunity scores (no-shows plus appointments cancelled after-the-fact) with the contract mean of .1212 and the VA-staffed mean of .1160.

CONCLUSIONS

Summary

This research compares contract versus VA-staffed community-based outpatient clinics (CBOCs) in terms of patient satisfaction, clinic wait times in excess of 30 days, and clinic missed opportunities. This exploration looks at the sets of comparisons using two tools: Student's *t* test for statistically significant differences in means, and logistic regression to look for statistical significance in predicting the contract versus VA-staffed status of a CBOC. When applying logistic regression, the beta conveys the effect of the scores in the model, while the difference in classification shows if there is a difference in contract versus VA-staffed when adjusting for factors such as CBOC size, complexity of the parent facility, community size, and gender of the patient.

Student's *t* tests for differences in mean scores for patient satisfaction indicate higher satisfaction scores for access in contract CBOCs, but lower scores for contract versus VA-staffed CBOCs for continuity of care, courtesy, education and information, emotional support, overall coordination, visit coordination, and preferences. Logistic regression models with one independent variable for satisfaction are consistent with *t* test results: the satisfaction score for access has a positive beta in the resultant equation, but the other scores have negative betas in their models. A negative beta indicates a score is a negative predictor of a CBOC's contract status. In other words, a negative beta indicates that a lower satisfaction score leads to a greater predictive possibility of a VA-staffed CBOC. In the models considering individual satisfaction

scores, the greatest classification improvement occurs for continuity of care, where the correct predictions improve from 75.4% to 83%.

When considering several patient satisfaction categories in a combined logistic regression model, the picture changes. As seen in Hypothesis T, the areas of continuity, courtesy, education, and preferences continue to serve as a negative predictor of contract versus VA-staffed CBOC status and the beta for the access remains positive. However, emotional support, overall coordination, and visit coordination assume positive beta values in the combined model and become positive predictors of contract status of a CBOC. This indicates that higher satisfaction scores in these areas have a positive effect on the predictive possibility of a CBOC being a contract model. Thus, the combination of all considered satisfaction scores slightly improves classification, but complicates the role of emotional support, overall coordination, and visit coordination in predicting a CBOC's contract versus VA-staffed make-up.

This data also suggests that contract CBOCs do better in seeing patients sooner according to the wait-times data looking at percentage of patients seen within 30 days. Both VA-staffed and contract CBOCs have overall mean wait times percentages from October 2007-June 2008 that would meet FY07 and FY08 performance measure targets. Moreover, the inclusion of wait times as an independent variable along with independent variables for patient, CBOC, and parent-facility characteristics in a logistic regression model indicate that percentage of patients seen within 30 days is a positive predictor of a CBOC's contract status.

According to this data analysis, VA-staffed CBOCs have had lower mean scores for missed opportunities (no-shows plus appointments cancelled after-the-fact), but neither VA-staffed nor contract CBOCs would meet FY08 national performance measure targets based on data from FY08. The inclusion of missed opportunities as an independent variable along with

independent variables for patient, CBOC, and parent-facility characteristics in a logistic regression model indicate that the percentage of missed opportunities is a positive predictor of a CBOC's contract status. However, in this case, being a negative predictor would indicate better patient access.

Table 23 Summary of VA versus Contract Means for Wait Times and Missed Opportunities from Hypotheses T-U

Data Source	Test	Data Period	Contract Mean	VA Mean	FY07 Target	FY08 Target	FY09 Target
Wait Times	Wait Times	1st Qtr FY07 - 3rd Qtr FY08	0.9818	0.9753	0.82*	0.9*	0.99
Missed Opportunities	Missed Opportunities	FY08	0.1213	0.116	0.12**	0.11**	0.11**

* New patients in primary care clinics
** Primary care clinics.

Limitations

Limitations of this project include availability of data, the simplified distinction of VA-staffed versus contract CBOCs, and the inability to compare patient satisfaction scores from this study to future scores due to transition to a new survey instrument beginning FY09. A risk for the satisfaction measures is self-selection bias on the part of the survey responders.

Data Limitations

Echoing the 2007 work by Maciejewski, Perkins, Li, Chapko, Fortney, and Liu, overall study limitations include unmeasured confounders (such as disease status), limited information on health outcomes and quality measures, and lack of information about non-VA health care use and cost. Details of Veteran age and health status would have improved the access-related models involving wait times and missed opportunities. Another data-related limitation of the

study is the lack of FY07 data for missed opportunities. This additional data would have improved the consistency among the data sets.

Contract versus VA-Staffed CBOC Distinctions

The national VAST list presents CBOCs as contract or VA-staffed models. As found in CBOCs linked to Station 598, some CBOCs provide primary care through contract and mental health care using VA staff. National lists do not capture the distinctions of such hybrid models by indicating if contract care pertains to all or part of the care provided at the CBOC. This limitation carries over to the accuracy of the analysis: some CBOCs reported as contract may have some VA-staffed components of care.

Transition from Picker to CAHPS-based Survey Instrument for Satisfaction

The patient satisfaction data in this study uses fiscal year 2007 and 2008 patient responses to the Picker-based Survey of Healthcare Experiences of Patients (SHEP). SHEP scores have seen a decrease in response rates, from approximately 61% in 2005, to 55% by the middle of 2008 (Office of Quality and Performance, 2008). Other SHEP challenges include the lack of use of the old survey outside of the VHA, absence of outside, and the inability of the methodology to meet future Joint Commission requirements.

In July 2008, the Office of Management and Budget (OMB) approved the use of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) survey tool. In August 2008, the plan was to administer the new tool in parallel form with the old Picker-based SHEP survey in the fourth quarter of FY08 in order to calibrate the use of the new survey.

According to the CAHPS kickoff presentation, the intent is to improve the benchmarking potential for patient satisfaction – not to remain completely consistent with prior survey formats for Veterans satisfaction (Office of Quality and Performance, 2008). While the domains

measured will remain the same, the emphasis will change from rating the quality of care of a particular experience to comparing all healthcare received in the past 12 months to the best (and worst) possible health care. These changes will present challenges in using data prior to FY09 with future results. However, future benefits should include opportunities for comparative research to other healthcare venues on a go-forward basis.

RECOMMENDATIONS

In considering issues of patient satisfaction in VA-staffed versus contract CBOCs, one should consider contextual factors such as patient gender, distance of the CBOC from the parent facility, characteristics of the CBOC community, and parent facility complexity. Continuity of care difference stands out the most, but the two types of models (*t* test, logistic regression) support the finding of higher satisfaction scores in VA-staffed CBOCs for continuity of care, courtesy, patient education, and patient preferences.

The differences in the continuity of care scores for the Picker-based SHEP data from October 2007-June 2008 supports the finding by Liu, Chapko, Perkins, Fortney, & Maciejewski (2008) that patients in contract versus VA-staffed CBOCs have less utilization of specialty-care VA services. Therefore, VA parent facilities should prioritize efforts towards continuity of care and communication about referral processes for specialty care to promote consistent care for all Veterans no matter the staffing of the CBOCs.

Future research should revisit the topic of CBOC satisfaction in VA-staffed versus contract CBOCs using CAHPS-based data collected beginning FY09 with the caveat that data collected beginning FY09 cannot be compared to prior –year VA data.

In terms of access, this research also shows that contract CBOCs have had better results in terms of seeing patients within 30 days, but endure greater numbers of missed opportunities

than VA-staffed CBOCs. The two implications are: 1) the need for study into the potential trade-off between accessibility and use of clinic appointments and 2) thus far, contract CBOCs have performed better than VA-staffed in seeing patients within 30 days.

The current distinction of VA-staffed versus contract care at CBOCs pertains mainly to primary care. The VAST list does not capture the nuances of hybrid models, such as those that provide primary care using contract care with and mental health and other services provided by VA staff. The VAST list or other national lists should either create the option of reporting a hybrid model of contract and VA-staffed care or make separate distinctions for contract primary care versus mental health care. This type of update would promote better understanding of the complexities of care provided a CBOCs and would facilitate this type of research.

APPENDICES

Appendix A

Data Inspection for Satisfaction Scores.

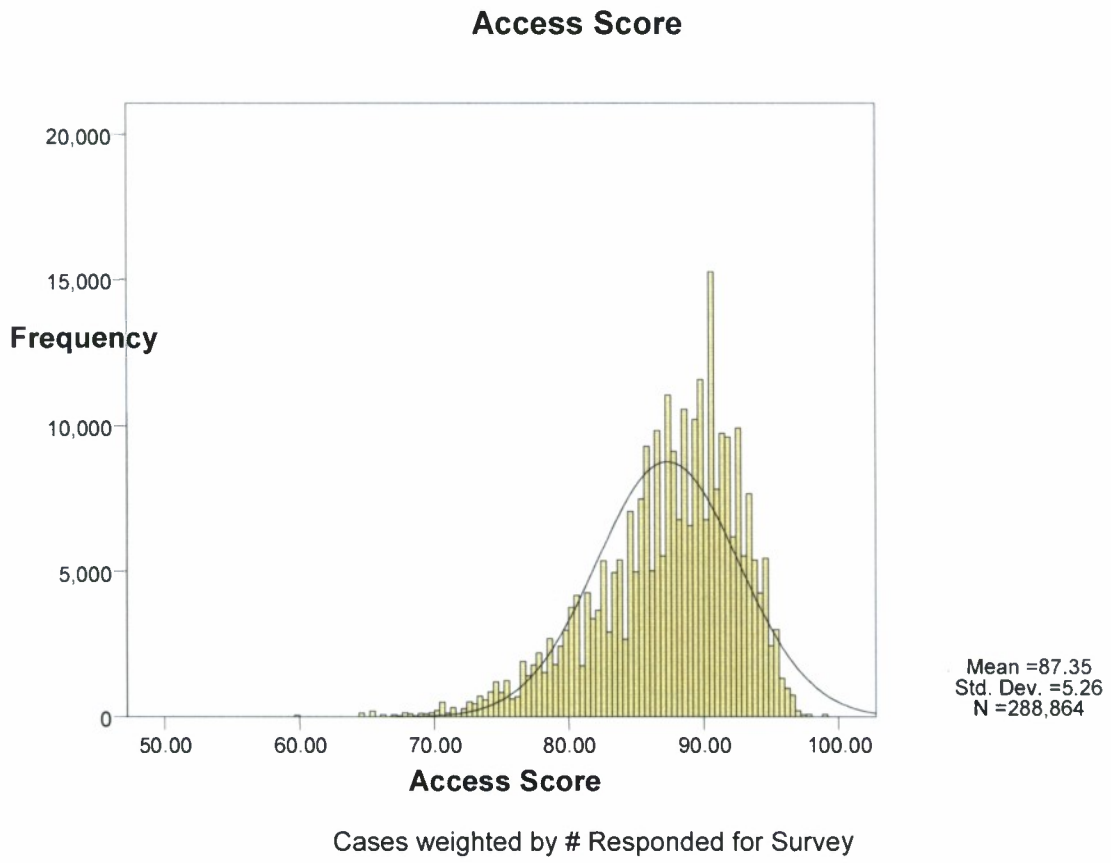

Figure 1. Normality Review of Satisfaction Scores for Access

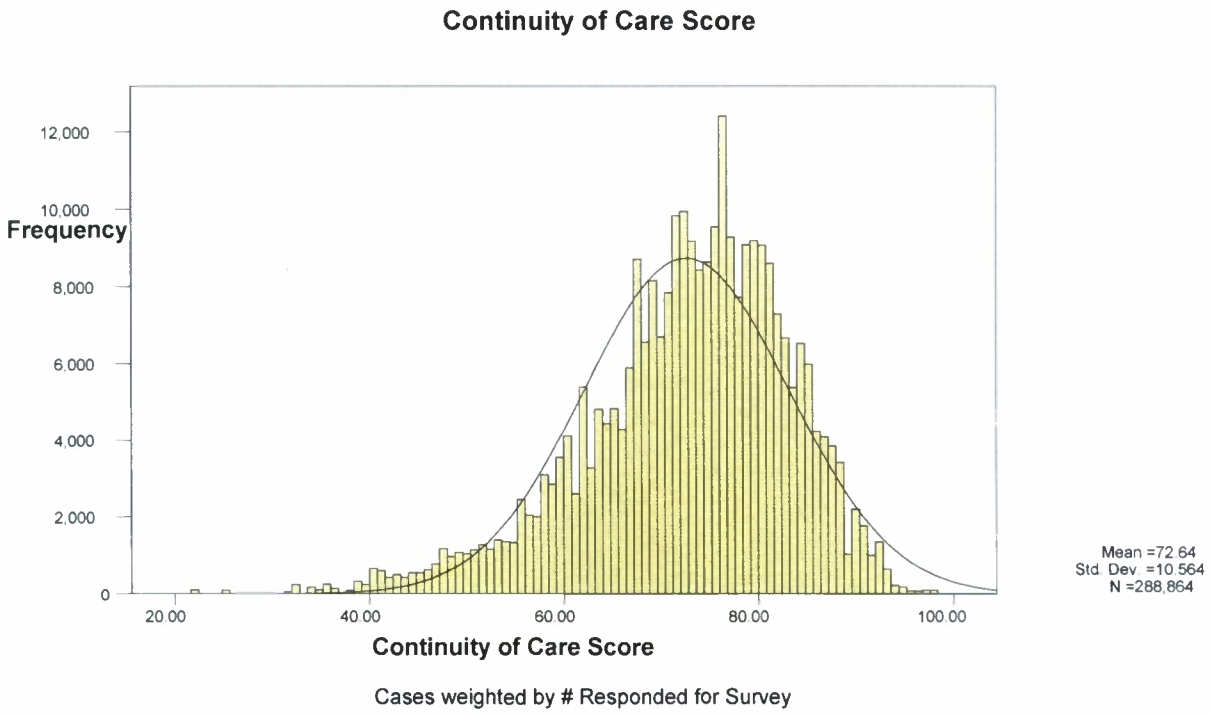

Figure 1. Normality Review of Satisfaction Scores for Continuity of Care

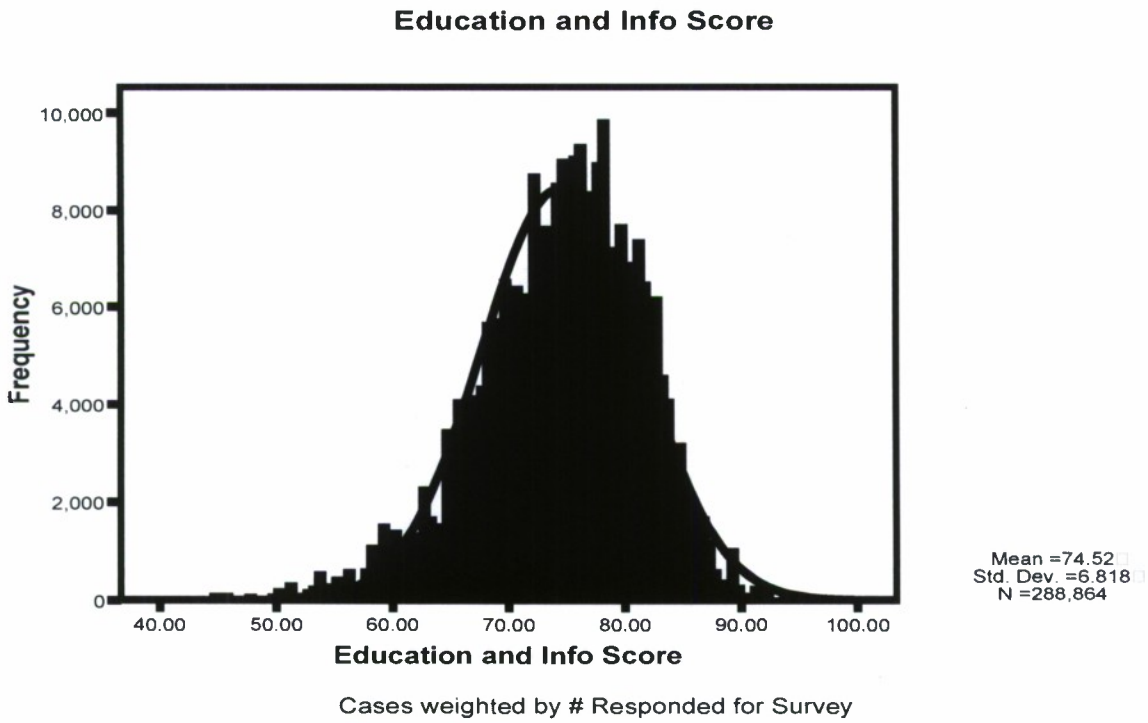

Figure 3. Normality Review of Satisfaction Scores for Education

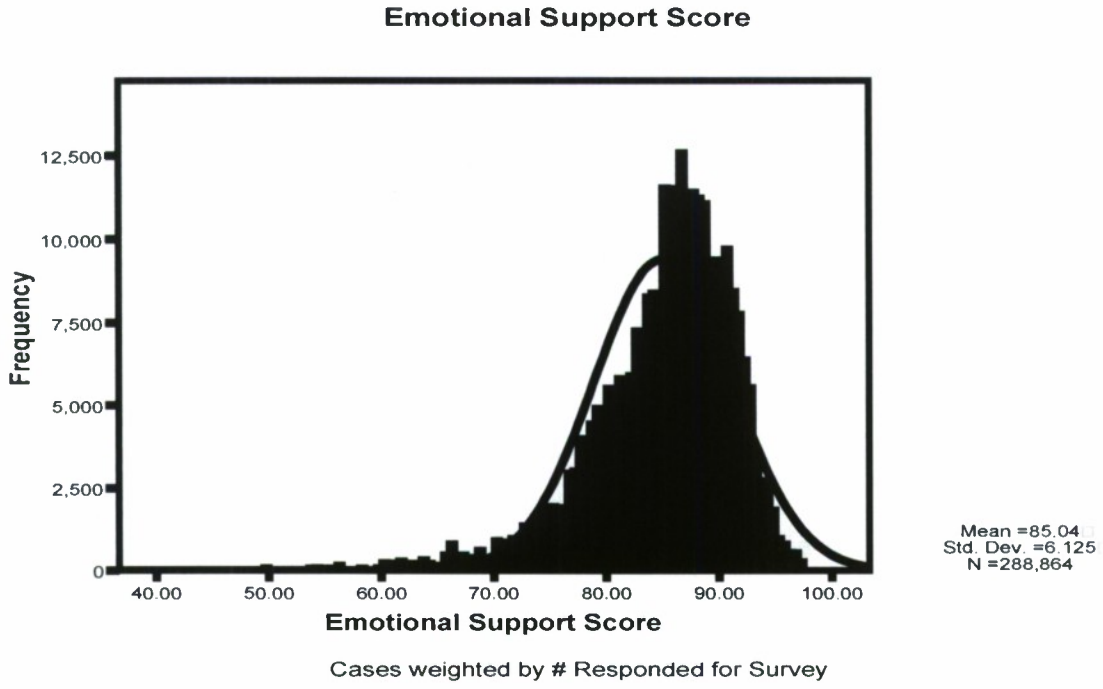

Figure 4: Normality Review of Satisfaction Scores for Emotional Support

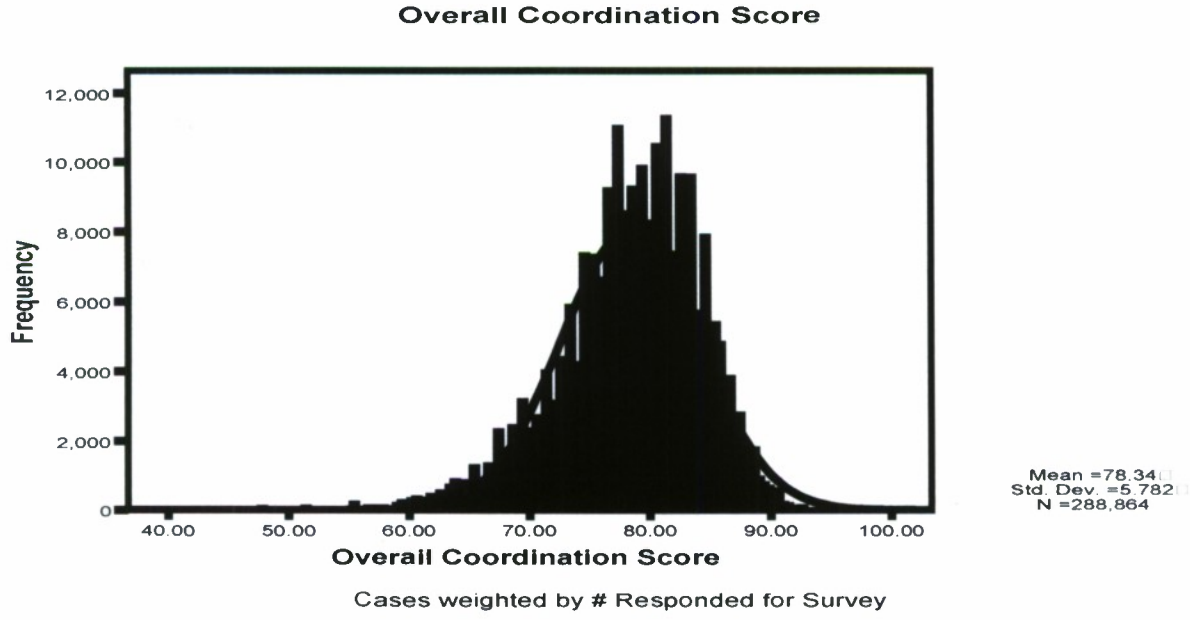

Figure 5. Normality Review of Satisfaction Scores for Overall Coordination

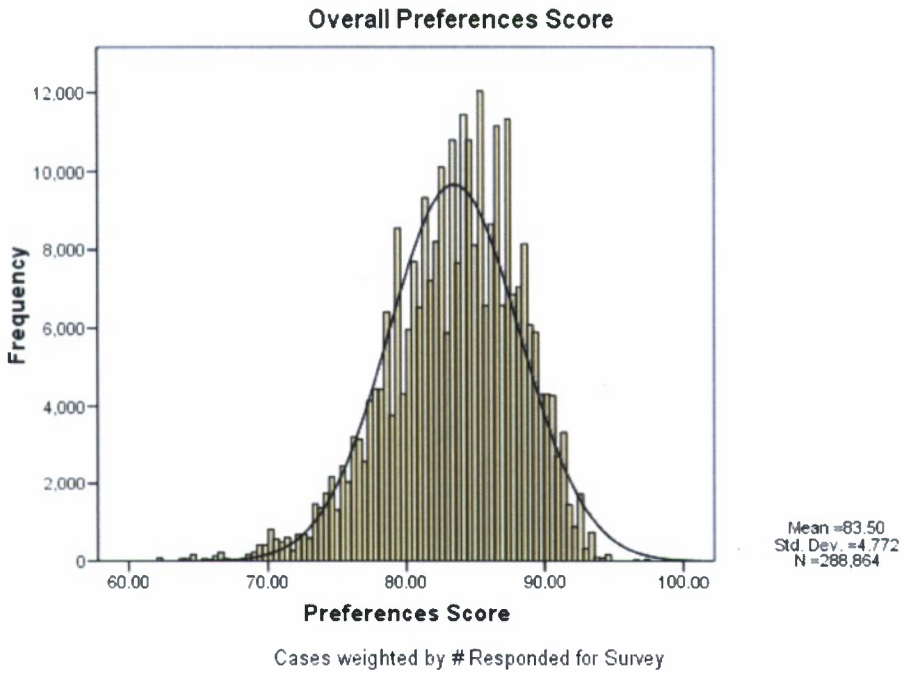

Figure 6. Normality Review for Satisfaction Scores for Preferences

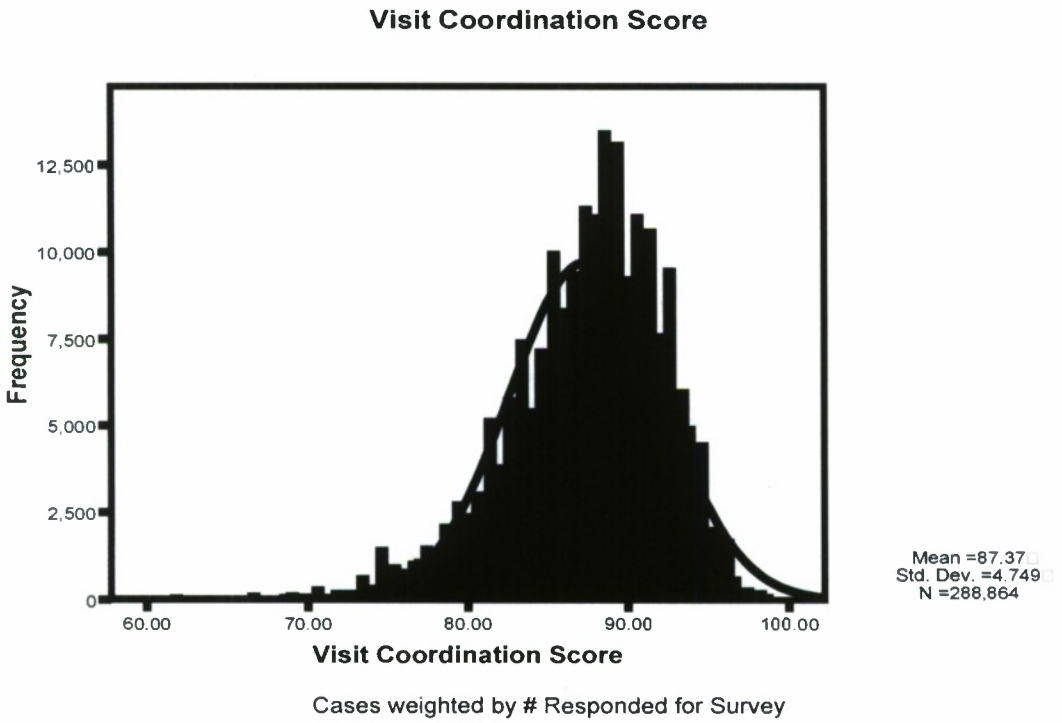

Figure 7. Normality Review of Satisfaction Scores for Visit Coordination

Appendix B

t Tests for Satisfaction Scores

Table 1

Group Statistics for Satisfaction Scores: Hypotheses A-H

Group Statistics

	typ Contract/VA	N	Mean	Std. Deviation	Std. Error Mean
scoAcc Access Score	0 VA	217665	87.2840	5.18448	.01111
	1 Contract	71199	87.5644	5.47770	.02053
scoCoC Continuity of Care Score	0 VA	217665	74.7566	9.11455	.01954
	1 Contract	71199	66.1538	11.95955	.04482
scoCou Courtesy Score	0 VA	217665	95.9024	2.59696	.00557
	1 Contract	71199	95.7771	2.80742	.01052
scoEdu Education and Info Score	0 VA	217665	74.7921	6.52509	.01399
	1 Contract	71199	73.6817	7.58426	.02842
scoEmo Emotional Support Score	0 VA	217665	85.2471	5.96808	.01279
	1 Contract	71199	84.4000	6.54111	.02451
scoOvCor Overall Coordination Score	0 VA	217665	78.7576	5.44883	.01168
	1 Contract	71199	77.0757	6.53637	.02450
scoViCor Visit Coordination Score	0 VA	217665	87.3355	4.63188	.00993
	1 Contract	71199	87.4696	5.08858	.01907
sco_Pre Preferences Score	0 VA	217665	83.7688	4.61941	.00990
	1 Contract	71199	82.6857	5.12355	.01920

Table 2

Independent Samples Test for Satisfaction Scores: Hypotheses A-H

Independent Samples Test

		Levene's Test for Equality of Variances		*t* test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Diff.	Std. Error Diff.	95% Confidence Interval of the Difference	
									Upper	Lower
scoAcc Access Score	Equal variances assumed	235.597	.000	-12.349	288862	.000	-.28033	.02270	-.32483	-.23584
	Equal variances not assumed			-12.009	115784.402	.000	-.28033	.02334	-.32609	-.23458
scoCoC Continuity of Care Score	Equal variances assumed	9693.111	.000	201.437	288862	.000	8.60282	.04271	8.51911	8.68652
	Equal variances not assumed			175.951	99644.955	.000	8.60282	.04889	8.50699	8.69865
scoCou Courtesy Score	Equal variances assumed	809.672	.000	10.951	288862	.000	.12531	.01144	.10288	.14773
	Equal variances not assumed			10.527	113718.040	.000	.12531	.01190	.10198	.14864
scoEdu Education and Info Score	Equal variances assumed	2402.967	.000	37.817	288862	.000	1.11046	.02936	1.05291	1.16802
	Equal variances not assumed			35.055	107781.995	.000	1.11046	.03168	1.04837	1.17255
scoEmo Emotional Support Score	Equal variances assumed	702.076	.000	32.093	288862	.000	.84717	.02640	.79544	.89891
	Equal variances not assumed			30.638	112522.849	.000	.84717	.02765	.79298	.90137
scoOvCor Overall Coordination Score	Equal variances assumed	3775.772	.000	67.916	288862	.000	1.68191	.02476	1.63337	1.73045
	Equal variances not assumed			61.976	105462.324	.000	1.68191	.02714	1.62872	1.73510
scoViCor Visit Coordination Score	Equal variances assumed	355.998	.000	-6.542	288862	.000	-.13412	.02050	-.17431	-.09394
	Equal variances not assumed			-6.238	112321.664	.000	-.13412	.02150	-.17626	-.09199
sco_Pre Preference Score	Equal variances assumed	1344.312	.000	52.830	288862	.000	1.08310	.02050	1.04292	1.12328
	Equal variances not assumed			50.134	111515.832	.000	1.08310	.02160	1.04076	1.12544

Appendix C

SPSS Output for Hypothesis I: Access

Table 1

Case Processing Summary for Hypothesis I: Access

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis I: Access

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis I: Access

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis I: Access

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis I: Access

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis I: Access

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoAcc	152.409	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis I: Access

		Chi-square	df	Sig.
Step 1	Step	67516.309	19	.000
	Block	67516.309	19	.000
	Model	67516.309	19	.000

Table 8

Model Summary for Hypothesis I: Access

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	255106.716 (a)	.208	.310

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis I: Access

Observed			Predicted		
			Contract/VA		Percentage Correct
			0 VA	1 Contract	
Step 1	Contract/VA	0 VA	205478	12187	94.4
		1 Contract	41635	29564	41.5
	Overall Percentage				81.4

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis I: Access

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15177.174	3	.000	
	siz(1)	2.305	.019	14863.145	1	.000	10.025
	siz(2)	1.285	.017	5474.145	1	.000	3.614
	siz(3)	.998	.016	4015.508	1	.000	2.713
	mcg			7285.151	4	.000	
	mcg(1)	.928	.017	3078.534	1	.000	2.530
	mcg(2)	.027	.019	2.138	1	.144	1.028
	mcg(3)	1.146	.017	4741.455	1	.000	3.145
	mcg(4)	.849	.017	2378.886	1	.000	2.336
	uru(1)	-.427	.013	1146.246	1	.000	.653
	pop	.000	.000	1147.397	1	.000	1.000
	inc	.000	.000	5965.798	1	.000	1.000
	genp	5.748	.212	732.896	1	.000	313.620
	racep	2.753	.064	1822.666	1	.000	15.690
	reg			14963.075	5	.000	
	reg(1)	-1.506	.019	6397.470	1	.000	.222
	reg(2)	.066	.019	12.659	1	.000	1.068
	reg(3)	-2.010	.024	7265.132	1	.000	.134
	reg(4)	-.989	.023	1928.506	1	.000	.372
	reg(5)	-1.796	.020	8256.455	1	.000	.166
	dis	.001	.000	111.936	1	.000	1.001
	scoAcc	.032	.001	649.930	1	.000	1.033
	Constant	-9.730	.227	1833.849	1	.000	.000

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoAcc.

Appendix D

SPSS Output for Hypothesis J: Continuity of Care

Table 1

Case Processing Summary for Hypothesis J: Continuity of Care

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis J: Continuity of Care

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis J: Continuity of Care

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis J: Continuity of Care

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis J: Continuity of Care

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis J: Continuity of Care

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoCoC	35579.219	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Table of Coefficients for Hypothesis J: Continuity of Care

		Chi-square	df	Sig.
Step 1	Step	98597.973	19	.000
	Block	98597.973	19	.000
	Model	98597.973	19	.000

Table 8

Model Summary for Hypothesis J: Continuity of Care

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	224025.052 (a)	.289	.430

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis J: Continuity of Care

	Observed		Predicted		
			Contract/VA		Percentage Correct
			0 VA	1 Contract	
Step 1	Contract/VA	0 VA	203546	14119	93.5
		1 Contract	35127	36072	50.7
	Overall Percentage				83.0

at The cut value is .500

Table 10

Resultant Variables in the Equation for Hypothesis J: Continuity of Care

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			14676.762	3	.000	
	siz(1)	2.403	.021	13601.937	1	.000	11.056
	siz(2)	1.224	.018	4423.100	1	.000	3.402
	siz(3)	.776	.017	2098.212	1	.000	2.172
	mcg			6676.628	4	.000	
	mcg(1)	.947	.018	2891.100	1	.000	2.578
	mcg(2)	.064	.020	10.728	1	.001	1.066
	mcg(3)	1.217	.018	4739.903	1	.000	3.376
	mcg(4)	.854	.019	2128.112	1	.000	2.348
	uru(1)	-.451	.013	1139.450	1	.000	.637
	pop	.000	.000	216.383	1	.000	1.000
	inc	.000	.000	5044.258	1	.000	1.000
	genp	5.582	.228	598.309	1	.000	265.713
	racep	4.005	.068	3514.732	1	.000	54.869
	reg			12777.809	5	.000	
	reg(1)	-1.519	.019	6476.263	1	.000	.219
	reg(2)	-.233	.020	131.939	1	.000	.792
	reg(3)	-2.000	.025	6480.530	1	.000	.135
	reg(4)	-.964	.024	1591.432	1	.000	.381
	reg(5)	-1.811	.020	8280.120	1	.000	.164
	dis	.000	.000	14.040	1	.000	1.000
	scoCoC	-.088	.001	26762.622	1	.000	.915
	Constant	-1.441	.228	39.889	1	.000	.237

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoCoC.

Appendix E

SPSS Output for Hypothesis K: Courtesy

Table 1

Case Processing Summary for Hypothesis K: Courtesy

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis K: Courtesy

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis K: Courtesy

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis K: Courtesy

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis K: Courtesy

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis K: Courtesy

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoCou	119.873	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Table of Model Coefficients for Hypothesis K: Courtesy

		Chi-square	df	Sig.
Step 1	Step	66909.940	19	.000
	Block	66909.940	19	.000
	Model	66909.940	19	.000

Table 8

Model Summary for Hypothesis K: Courtesy

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	255713.084 (a)	.207	.307

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis K: Courtesy

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	205385	12280	94.4
		1 Contract	40833	30366	42.6
	Overall Percentage				81.6

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis K: Courtesy

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15254.113	3	.000	
	siz(1)	2.325	.019	15084.546	1	.000	10.230
	siz(2)	1.341	.017	6070.615	1	.000	3.821
	siz(3)	1.049	.016	4484.676	1	.000	2.855
	mcg			7311.475	4	.000	
	mcg(1)	.901	.017	2905.337	1	.000	2.463
	mcg(2)	.013	.019	.474	1	.491	1.013
	mcg(3)	1.159	.017	4857.475	1	.000	3.186
	mcg(4)	.835	.017	2322.119	1	.000	2.304
	uru(1)	-.483	.012	1498.337	1	.000	.617
	pop	.000	.000	1162.405	1	.000	1.000
	inc	.000	.000	6147.585	1	.000	1.000
	genp	5.880	.213	764.308	1	.000	357.702
	racep	3.270	.063	2653.459	1	.000	26.301
	reg			14099.935	5	.000	
	reg(1)	-1.305	.018	5516.353	1	.000	.271
	reg(2)	.130	.018	49.870	1	.000	1.139
	reg(3)	-1.884	.023	6609.966	1	.000	.152
	reg(4)	-.970	.022	1858.729	1	.000	.379
	reg(5)	-1.617	.019	7436.764	1	.000	.199
	dis	.001	.000	88.772	1	.000	1.001
	scoCou	-.014	.002	51.584	1	.000	.986
	Constant	-6.186	.277	500.189	1	.000	.002

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoCou.

Appendix F

SPSS Output for Hypothesis L: Education and Information

Table 1

Case Processing Summary for Hypothesis L: Education and Information

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis L: Education and Information

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis L: Education and Information

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis L: Education and Information

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis L: Education and Information

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis L: Education and Information

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoEdu	1423.076	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Table of Model Coefficients for Hypothesis L: Education and Information

		Chi-square	df	Sig.
Step 1	Step	67891.600	19	.000
	Block	67891.600	19	.000
	Model	67891.600	19	.000

Table 8

Model Summary for Hypothesis L: Education and Information

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	254731.425 (a)	.209	.311

an Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 9 Resultant Classification Table for Hypothesis L: Education and Information

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	204988	12677	94.2
		1 Contract	39970	31229	43.9
	Overall Percentage				81.8

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis L: Education and Information

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15330.952	3	.000	
	siz(1)	2.342	.019	15183.189	1	.000	10.402
	siz(2)	1.356	.017	6200.870	1	.000	3.879
	siz(3)	1.068	.016	4625.974	1	.000	2.908
	mcg			7331.085	4	.000	
	mcg(1)	.910	.017	2951.670	1	.000	2.484
	mcg(2)	.021	.019	1.236	1	.266	1.021
	mcg(3)	1.171	.017	4932.419	1	.000	3.224
	mcg(4)	.838	.017	2336.834	1	.000	2.311
	uru(1)	-.491	.012	1554.791	1	.000	.612
	pop	.000	.000	1092.443	1	.000	1.000
	inc	.000	.000	5907.409	1	.000	1.000
	genp	5.933	.214	769.674	1	.000	377.167
	racep	3.403	.063	2911.986	1	.000	30.055
	reg			13789.234	5	.000	
	reg(1)	-1.286	.017	5439.662	1	.000	.276
	reg(2)	.088	.018	22.730	1	.000	1.092
	reg(3)	-1.903	.023	6761.525	1	.000	.149
	reg(4)	-.990	.023	1933.071	1	.000	.372
	reg(5)	-1.595	.019	7309.952	1	.000	.203
	dis	.001	.000	70.653	1	.000	1.001
	scoEdu	-.024	.001	1032.558	1	.000	.977
	Constant	-6.035	.215	788.700	1	.000	.002

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoEdu.

Appendix G

SPSS Output for Hypothesis M: Emotional Support

Table 1

Case Processing Summary for Hypothesis M: Emotional Support

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis M: Emotional Support

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis M: Emotional Support

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis M: Emotional Support

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis M: Emotional Support

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis M: Emotional Support

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoEmo	1026.308	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Coefficients for Hypothesis M: Emotional Support

		Chi-square	df	Sig.
Step 1	Step	67246.852	19	.000
	Block	67246.852	19	.000
	Model	67246.852	19	.000

Table 8

Model Summary for Hypothesis M: Emotional Support

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	254757.177 (a)	.209	.311

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis M: Emotional Support

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	205663	12002	94.5
		1 Contract	40387	30812	43.3
	Overall Percentage				81.9

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis M: Emotional Support

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15267.913	3	.000	
	siz(1)	2.328	.019	15100.431	1	.000	10.257
	siz(2)	1.340	.017	6074.744	1	.000	3.818
	siz(3)	1.052	.016	4514.026	1	.000	2.864
	mcg			7382.678	4	.000	
	mcg(1)	.910	.017	2964.495	1	.000	2.485
	mcg(2)	.017	.019	.823	1	.364	1.017
	mcg(3)	1.171	.017	4942.701	1	.000	3.224
	mcg(4)	.838	.017	2344.323	1	.000	2.312
	uru(1)	-.484	.012	1510.963	1	.000	.617
	pop	.000	.000	1126.642	1	.000	1.000
	inc	.000	.000	5990.145	1	.000	1.000
	genp	5.863	.213	757.354	1	.000	351.667
	racep	3.354	.063	2818.702	1	.000	28.629
	reg			13899.698	5	.000	
	reg(1)	-1.303	.017	5596.158	1	.000	.272
	reg(2)	.119	.018	41.468	1	.000	1.126
	reg(3)	-1.863	.023	6487.568	1	.000	.155
	reg(4)	-.964	.022	1846.077	1	.000	.381
	reg(5)	-1.600	.019	7337.525	1	.000	.202
	dis	.001	.000	86.245	1	.000	1.001
	scoEmo	-.016	.001	390.496	1	.000	.984
	Constant	-6.315	.218	841.976	1	.000	.002

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoEmo.

Appendix H

SPSS Output for Hypothesis N: Overall Coordination

Table 1

Case Processing Summary for Hypothesis N: Overall Coordination

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis N: Overall Coordination

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis N: Overall Coordination

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis N: Overall Coordination

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis N: Overall Coordination

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis N: Overall Coordination

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoOvCor	4540.157	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis N: Overall Coordination

		Chi-square	df	Sig.
Step 1	Step	71336.155	19	.000
	Block	71336.155	19	.000
	Model	71336.155	19	.000

Table 8

Model Summary for Hypothesis N: Overall Coordination

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	250617.774 (a)	.221	.328

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis N: Overall Coordination

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	204665	13000	94.0
		1 Contract	40653	30546	42.9
	Overall Percentage				81.4

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis N: Overall Coordination

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			14945.629	3	.000	
	siz(1)	2.342	.019	14858.076	1	.000	10.399
	siz(2)	1.366	.017	6229.250	1	.000	3.919
	siz(3)	1.098	.016	4813.895	1	.000	2.999
	mcg			7047.260	4	.000	
	mcg(1)	.885	.017	2765.862	1	.000	2.423
	mcg(2)	-.004	.019	.054	1	.817	.996
	mcg(3)	1.153	.017	4746.901	1	.000	3.169
	mcg(4)	.802	.017	2123.754	1	.000	2.230
	uru(1)	-.540	.013	1840.565	1	.000	.583
	pop	.000	.000	946.620	1	.000	1.000
	inc	.000	.000	6051.889	1	.000	1.000
	genp	6.507	.216	909.870	1	.000	669.955
	racep	3.706	.064	3366.627	1	.000	40.681
	reg			12501.627	5	.000	
	reg(1)	-1.175	.018	4413.905	1	.000	.309
	reg(2)	.046	.019	6.138	1	.013	1.047
	reg(3)	-1.927	.023	6751.512	1	.000	.146
	reg(4)	-1.037	.023	2064.089	1	.000	.355
	reg(5)	-1.522	.019	6566.532	1	.000	.218
	dis	.000	.000	53.895	1	.000	1.000
	scoOvCor	-.061	.001	4422.390	1	.000	.941
	Constant	-3.804	.218	303.261	1	.000	.022

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoOvCor.

Appendix I

SPSS Output for Hypothesis O: Visit Coordination

Table 1

Case Processing Summary for Hypothesis O: Visit Coordination

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis O: Visit Coordination

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Encodings for Hypothesis O: Visit Coordination

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis O: Visit Coordination

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis O: Visit Coordination

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis O: Visit Coordination

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoViCor	42.796	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis O: Visit Coordination

		Chi-square	df	Sig.
Step 1	Step	66880.360	19	.000
	Block	66880.360	19	.000
	Model	66880.360	19	.000

Table 8

Model Summary for Hypothesis O: Visit Coordination

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	255742.665 (a)	.207	.307

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis O: Visit Coordination

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	205602	12063	94.5
		1 Contract	40914	30285	42.5
	Overall Percentage				81.7

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis O: Visit Coordination

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15287.033	3	.000	
	siz(1)	2.334	.019	15091.183	1	.000	10.323
	siz(2)	1.346	.017	6056.086	1	.000	3.841
	siz(3)	1.054	.016	4472.424	1	.000	2.869
	mcg			7282.444	4	.000	
	mcg(1)	.898	.017	2886.073	1	.000	2.456
	mcg(2)	.012	.019	.413	1	.520	1.012
	mcg(3)	1.155	.017	4829.492	1	.000	3.174
	mcg(4)	.833	.017	2311.804	1	.000	2.300
	uru(1)	-.482	.013	1485.397	1	.000	.617
	pop	.000	.000	1140.109	1	.000	1.000
	inc	.000	.000	6127.317	1	.000	1.000
	genp	5.922	.213	775.170	1	.000	372.987
	racep	3.236	.063	2615.254	1	.000	25.432
	reg			14092.605	5	.000	
	reg(1)	-1.311	.018	5550.478	1	.000	.270
	reg(2)	.129	.018	49.340	1	.000	1.138
	reg(3)	-1.895	.023	6722.765	1	.000	.150
	reg(4)	-.966	.022	1848.037	1	.000	.381
	reg(5)	-1.615	.019	7239.730	1	.000	.199
	dis	.001	.000	88.455	1	.000	1.001
	scoViCor	-.006	.001	21.848	1	.000	.994
	Constant	-7.087	.226	983.165	1	.000	.001

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoViCor.

Appendix J

SPSS Output for Hypothesis P: Preferences

Table 1

Case Processing Summary for Hypothesis P: Preferences

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis P: Preferences

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis P: Preferences

		Frequency	Parameter coding (2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis P: Preferences

Observed			Predicted: Contract/VA 0 VA	1 Contract	Percentage Correct
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis P: Preferences

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis P: Preferences

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		sco_Pre	2764.353	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis P: Preferences

		Chi-square	df	Sig.
Step 1	Step	68431.413	19	.000
	Block	68431.413	19	.000
	Model	68431.413	19	.000

Table 8

Model Summary for Hypothesis P: Preferences

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	254191.611 (a)	.211	.314

a Estimation terminated at iteration number 5 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis P: Preferences

	Observed		Predicted		
			Contract/VA		Percentage Correct
			0 VA	1 Contract	
Step 1	Contract/VA	0 VA	204536	13129	94.0
		1 Contract	39648	31551	44.3
	Overall Percentage				81.7

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis P: Preferences

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			15359.838	3	.000	
	siz(1)	2.351	.019	15236.873	1	.000	10.496
	siz(2)	1.370	.017	6327.514	1	.000	3.935
	siz(3)	1.079	.016	4718.221	1	.000	2.942
	mcg			7293.440	4	.000	
	mcg(1)	.909	.017	2937.223	1	.000	2.482
	mcg(2)	.017	.019	.835	1	.361	1.017
	mcg(3)	1.170	.017	4920.011	1	.000	3.223
	mcg(4)	.825	.017	2264.971	1	.000	2.283
	uru(1)	-.492	.012	1556.254	1	.000	.611
	pop	.000	.000	1126.035	1	.000	1.000
	inc	.000	.000	5925.405	1	.000	1.000
	genp	5.852	.214	745.820	1	.000	348.060
	racep	3.595	.064	3168.076	1	.000	36.427
	reg			12819.292	5	.000	
	reg(1)	-1.216	.018	4752.651	1	.000	.296
	reg(2)	.121	.019	43.068	1	.000	1.129
	reg(3)	-1.848	.023	6340.036	1	.000	.158
	reg(4)	-.985	.023	1901.164	1	.000	.374
	reg(5)	-1.530	.019	6608.226	1	.000	.217
	dis	.000	.000	54.261	1	.000	1.000
	sco_Pre	-.044	.001	1568.346	1	.000	.957
	Constant	-4.286	.225	362.622	1	.000	.014

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, sco_Pre.

Appendix K

SPSS Output for Hypothesis Q: Wait Times (Percentage within 30 Days)

Case Processing Summary

Table 1

Case Processing Summary for Hypothesis Q: Wait Times (Percentage within 30 Days)

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	167765	100.0
	Missing Cases	0	.0
	Total	167765	100.0
Unselected Cases		0	.0
Total		167765	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis Q: Wait Times (Percentage within 30 Days)

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variable Codings for Hypothesis Q: Wait Times (Percentage within 30 Days)

		Frequency	Parameter coding										
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(1)
scc Service Conn. Cat	0 SC 0%	31009	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	1 SC 10%	9214	.000	1.00	.000	.000	.000	.000	.000	.000	.000	.000	.000
	2 SC 20%	8607	.000	.000	1.00	.000	.000	.000	.000	.000	.000	.000	.000
	3 SC 30%	8667	.000	.000	.000	1.00	.000	.000	.000	.000	.000	.000	.000
	4 SC 40%	8479	.000	.000	.000	.000	1.00	.000	.000	.000	.000	.000	.000
	5 SC 50%	8127	.000	.000	.000	.000	.000	1.00	.000	.000	.000	.000	.000
	6 SC 60%	8179	.000	.000	.000	.000	.000	.000	1.00	.000	.000	.000	.000
	7 SC 70%	7978	.000	.000	.000	.000	.000	.000	.000	1.0	.000	.000	.000
	8 SC 80%	7581	.000	.000	.000	.000	.000	.000	.000	.000	1.00	.000	.000
	9 SC 90%	6734	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.00	.000
	10 SC 100%	8144	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.00
	11 NSC (Non SC)	55046	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
epr	1	46381	1.000	.000	.000	.000	.000	.000	.000				
	2	16689	.000	1.000	.000	.000	.000	.000	.000				
	3	27131	.000	.000	1.000	.000	.000	.000	.000				
	4	9001	.000	.000	.000	1.000	.000	.000	.000				
	5	29925	.000	.000	.000	.000	1.00	.000	.000				
	6	12875	.000	.000	.000	.000	.000	1.00	.000				
	7	10365	.000	.000	.000	.000	.000	.000	1.00 0				
	8	15398	.000	.000	.000	.000	.000	.000	.000				
reg Region	30 NE	47816	1.000	.000	.000	.000	.000						
	31 SE	23519	.000	1.000	.000	.000	.000						
	32 NW	24155	.000	.000	1.000	.000	.000						
	33 SW	15632	.000	.000	.000	1.000	.000						
	34 N Ctrl	30839	.000	.000	.000	.000	1.00						
	35 S Ctrl	25804	.000	.000	.000	.000	.000						
mcg Med Ctr Grp of Parent	0 1a	50621	1.000	.000	.000	.000							
	1 1b	28652	.000	1.000	.000	.000							
	2 1c	32990	.000	.000	1.000	.000							
	3 2	23071	.000	.000	.000	1.000							
	4 3	32431	.000	.000	.000	.000							
siz CBOC Siz	0 Small	22179	1.000	.000	.000								
	1 Medium	40851	.000	1.000	.000								
	2 Large	49914	.000	.000	1.000								
	3 X-Large	54821	.000	.000	.000								
gen Gender	0 Female	57284	1.000										
	1 Male	110481	.000										
uru Urban or Rural Status	0 Urban	118933	1.000										
	1 Rural	48832	.000										

Table 4

Original Classification Table for Hypothesis Q: Wait Times (Percentage within 30 Days)

Observed			Predicted		
			CBOC Type (VA or Contract)		Percentage Correct
			0 VA	1 Contract	
Step 0	CBOC Type (VA or Contract)	0 VA	15220556	0	100.0
		1 Contract	1816868	0	.0
	Overall Percentage				89.3

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis Q: Wait Times (Percentage within 30 Days)

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.126	.001	7333065.440	1	.000	.119

Table 6

Original Variables Not in the Equation for Hypothesis Q: Wait Times (% within 30 Days)

			Score	df	Sig.
Step 0	Variables	siz	1347803.864	3	.000
		siz(1)	500481.205	1	.000
		siz(2)	222008.432	1	.000
		siz(3)	354230.826	1	.000
		mcg	104845.669	4	.000
		mcg(1)	24129.595	1	.000
		mcg(2)	24714.978	1	.000
		mcg(3)	21014.432	1	.000
		mcg(4)	59564.763	1	.000
		scc	59040.165	11	.000
		scc(1)	223.929	1	.000
		scc(2)	497.272	1	.000
		scc(3)	212.565	1	.000
		scc(4)	427.502	1	.000
		scc(5)	588.608	1	.000
		scc(6)	963.621	1	.000
		scc(7)	2283.579	1	.000
		scc(8)	6423.251	1	.000
		scc(9)	6101.844	1	.000
		scc(10)	2955.402	1	.000
		scc(11)	18244.749	1	.000
		epr	111561.830	7	.000
		epr(1)	43271.568	1	.000
		epr(2)	1044.392	1	.000
		epr(3)	643.245	1	.000
		epr(4)	.028	1	.866
		epr(5)	.032	1	.857
		epr(6)	17.697	1	.000
		epr(7)	1962.692	1	.000
		pop	119892.563	1	.000
		uru(1)	849587.483	1	.000
		inc	410949.080	1	.000
		gen(1)	6467.610	1	.000
		reg	285715.583	5	.000
		reg(1)	2662.434	1	.000
		reg(2)	157185.433	1	.000
		reg(3)	160023.061	1	.000
		reg(4)	12132.558	1	.000
		reg(5)	55.965	1	.000
		dis	42635.343	1	.000
		scoW	60903.552	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis Q: Wait Times (% within 30 Days)

		Chi-square	df	Sig.
Step 1	Step	2495391.777	36	.000
	Block	2495391.777	36	.000
	Model	2495391.777	36	.000

Model Summary

Table 8

Model Summary for Hypothesis Q: Wait Times (Percentage within 30 Days)

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	9070698.762(a)	.136	.276

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis Q: Wait Times (Percentage within 30 Days)

			Predicted		
			CBOC Type (VA or Contract)		
	Observed		0 VA	1 Contract	Percentage Correct
Step 1	CBOC Type (VA or Contract)	0 VA	15019590	200966	98.7
		1 Contract	1513354	303514	16.7
	Overall Percentage				89.9

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis Q: Wait Times (Percentage within 30 Days)

		B	S.E.	Wald	df	Sig.	Exp(B)
Step1(a)	siz			761910.455	3	.000	
	siz(1)	2.957	.004	551497.523	1	.000	19.246
	siz(2)	1.820	.003	382082.458	1	.000	6.171
	siz(3)	1.592	.002	490527.415	1	.000	4.914
	mcg			194955.320	4	.000	
	mcg(1)	.376	.003	14938.433	1	.000	1.456
	mcg(2)	-.566	.004	24146.399	1	.000	.568
	mcg(3)	.825	.003	68800.434	1	.000	2.283
	mcg(4)	.600	.003	33968.926	1	.000	1.822
	scc			2316.372	11	.000	
	scc(1)	-.115	.005	493.816	1	.000	.891
	scc(2)	-.087	.011	69.035	1	.000	.916
	scc(3)	-.122	.011	126.953	1	.000	.885
	scc(4)	-.468	.093	25.555	1	.000	.626
	scc(5)	-.511	.093	30.460	1	.000	.600
	scc(6)	-.434	.078	30.602	1	.000	.648
	scc(7)	-.494	.078	39.805	1	.000	.610
	scc(8)	-.575	.078	53.841	1	.000	.563
	scc(9)	-.638	.078	66.224	1	.000	.528
	scc(10)	-.596	.079	57.572	1	.000	.551
	scc(11)	-.651	.078	69.021	1	.000	.522
	epr			19656.705	7	.000	
	epr(1)	.003	.078	.002	1	.969	1.003
	epr(2)	.116	.093	1.576	1	.209	1.123
	epr(3)	-.229	.010	522.571	1	.000	.795
	epr(4)	-.457	.008	3111.009	1	.000	.633
	epr(5)	-.322	.002	18364.538	1	.000	.724
	epr(6)	-.263	.006	2173.087	1	.000	.769
	epr(7)	-.164	.006	752.049	1	.000	.849
	pop	.000	.000	1174.336	1	.000	1.000
	uru(1)	-.608	.002	67035.139	1	.000	.544
	inc	.000	.000	201678.407	1	.000	1.000
	gen(1)	-.135	.004	1082.633	1	.000	.873
	reg			555487.651	5	.000	
	reg(1)	-.538	.003	33828.642	1	.000	.584
	reg(2)	1.178	.003	186012.605	1	.000	3.247
	reg(3)	-1.432	.004	102566.330	1	.000	.239
	reg(4)	-.269	.004	4043.304	1	.000	.764
	reg(5)	-.240	.003	5477.116	1	.000	.787
	dis	.000	.000	272.227	1	.000	1.000
	scoW	3.635	.031	13665.130	1	.000	37.892
	Constant	-3.087	.031	9653.014	1	.000	.046

Appendix L

SPSS Output for Hypothesis R: Missed Opportunities

Table1

Case Processing Summary for Hypothesis R: Missed Opportunities

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	82702	100.0
	Missing Cases	0	.0
	Total	82702	100.0
Unselected Cases		0	.0
Total		82702	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis R: Missed Opportunities

Original Value	Internal Value
0 VA-Staffed	0
1 Contract	1

Table 3

Categorical Variable Coding for Hypothesis R: Missed Opportunities

			Parameter coding										
		Frequency	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(1)
scc Service Connection Category	0 SC 0%	15390	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	1 SC 10%	4488	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	2 SC 20%	4085	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000	.000
	3 SC 30%	4164	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000	.000
	4 SC 40%	4124	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000	.000
	5 SC 50%	3932	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000	.000
	6 SC 60%	3968	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000	.000
	7 SC 70%	3920	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000	.000
	8 SC 80%	3737	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000	.000
	9 SC 90%	3394	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000	.000
	10 SC 100%	4000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	1.000
	11 NSC	27500	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
epr Enrollment Priority	1 1	22752	1.000	.000	.000	.000	.000	.000	.000				
	2 2	8007	.000	1.000	.000	.000	.000	.000	.000				
	3 3	13010	.000	.000	1.000	.000	.000	.000	.000				
	4 4	4589	.000	.000	.000	1.000	.000	.000	.000				
	5 5	15567	.000	.000	.000	.000	1.000	.000	.000				
	6 6	6492	.000	.000	.000	.000	.000	1.000	.000				
	7 7	4866	.000	.000	.000	.000	.000	.000	1.000				
	8 8	7419	.000	.000	.000	.000	.000	.000	.000				
reg Region	30 NE	23839	1.000	.000	.000	.000	.000						
	31 SE	11684	.000	1.000	.000	.000	.000						
	32 North West	10894	.000	.000	1.000	.000	.000						
	33 South West	7815	.000	.000	.000	1.000	.000						
	34 North Central	15550	.000	.000	.000	.000	1.000						
	35 South Central	12920	.000	.000	.000	.000	.000						
mcg Parent Facility Medical Center Group	0 1a	25220	1.000	.000	.000	.000							
	1 1b	14502	.000	1.000	.000	.000							
	2 1c	15367	.000	.000	1.000	.000							
	3 2	11456	.000	.000	.000	1.000							
	4 3	16157	.000	.000	.000	.000							
siz CBOC Size	0 Small	11184	1.000	.000	.000								
	1 Medium	20486	.000	1.000	.000								
	2 Large	23738	.000	.000	1.000								
	3 X-Large	27294	.000	.000	.000								
gen Gender	0 Female	30074	1.000										
	1 Male	52628	.000										
uru Urban or Rural	0 Urban	58164	1.000										
	1 Rural	24538	.000										

Table 4

Original Classification Table for Hypothesis R: Missed Opportunities

Observed			Predicted		
			VA-Staffed or Contract		Percentage Correct
			0 VA-Staffed	1 Contract	
Step 0	VA-Staffed or Contract	0 VA-Staffed	9061855	0	100.0
		1 Contract	1052687	0	.0
	Overall Percentage				89.6

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis R: Missed Opportunities

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-2.153	.001	4370674.116	1	.000	.116

Table 6

Original Variables Not in the Equation for Hypothesis R: Missed Opportunities

			Score	df	Sig.
Step 0	Variables	reg	164944.585	5	.000
		reg(1)	1577.611	1	.000
		reg(2)	102541.910	1	.000
		reg(3)	83183.112	1	.000
		reg(4)	6408.945	1	.000
		reg(5)	560.151	1	.000
		dis	20657.574	1	.000
		siz	826826.824	3	.000
		siz(1)	277580.944	1	.000
		siz(2)	126458.792	1	.000
		siz(3)	264128.597	1	.000
		mcg	59297.498	4	.000
		mcg(1)	12755.894	1	.000
		mcg(2)	15500.624	1	.000
		mcg(3)	19609.680	1	.000
		mcg(4)	25229.235	1	.000
		uru(1)	478027.559	1	.000
		pop	66689.528	1	.000
		inc	222283.940	1	.000
		epr	52156.398	7	.000
		epr(1)	18652.270	1	.000
		epr(2)	419.491	1	.000
		epr(3)	307.619	1	.000
		epr(4)	58.726	1	.000
		epr(5)	16.471	1	.000
		epr(6)	15.749	1	.000
		epr(7)	1472.639	1	.000
		scc	25650.967	11	.000
		scc(1)	124.010	1	.000
		scc(2)	237.117	1	.000
		scc(3)	95.392	1	.000
		scc(4)	177.949	1	.000
		scc(5)	230.218	1	.000
		scc(6)	524.603	1	.000
		scc(7)	974.136	1	.000
		scc(8)	2548.545	1	.000
		scc(9)	2972.644	1	.000
		scc(10)	1236.874	1	.000
		scc(11)	7519.398	1	.000
		gen(1)	3567.790	1	.000
		ScoMO	7115.194	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients for Hypothesis R: Missed Opportunities

		Chi-square	df	Sig.
Step 1	Step	1489234.602	36	.000
	Block	1489234.602	36	.000
	Model	1489234.602	36	.000

Table 8

Model Summary for Hypothesis R: Missed Opportunities

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	5266246.065(a)	.137	.281

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis R: Missed Opportunities

	Observed		Predicted		
			VA-Staffed or Contract		Percentage Correct
			0 VA-Staffed	1 Contract	
Step 1	VA-Staffed or Contract	0 VA-Staffed	8937198	124657	98.6
		1 Contract	866257	186430	17.7
	Overall Percentage				90.2

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis R: Missed Opportunities

		B	S.E.	Wald	df	Sig.	Exp(B)
Step1(a)	reg			319503.882	5	.000	
	reg(1)	-.522	.004	18431.120	1	.000	.593
	reg(2)	1.172	.004	111860.998	1	.000	3.227
	reg(3)	-1.388	.006	54324.057	1	.000	.250
	reg(4)	-.275	.006	2443.210	1	.000	.760
	reg(5)	-.319	.004	5551.582	1	.000	.727
	dis	.000	.000	78.593	1	.000	1.000
	siz			486155.676	3	.000	
	siz(1)	2.999	.005	327395.884	1	.000	20.074
	siz(2)	1.880	.004	235735.209	1	.000	6.553
	siz(3)	1.720	.003	335990.974	1	.000	5.583
	mcg			116257.571	4	.000	
	mcg(1)	.417	.004	10641.383	1	.000	1.517
	mcg(2)	-.526	.005	11692.225	1	.000	.591
	mcg(3)	.909	.004	47288.778	1	.000	2.482
	mcg(4)	.618	.004	20411.940	1	.000	1.855
	uru(1)	-.613	.003	39008.476	1	.000	.542
	pop	.000	.000	1331.798	1	.000	1.000
	inc	.000	.000	118600.352	1	.000	1.000
	epr			16960.710	7	.000	
	epr(1)	-.026	.109	.058	1	.809	.974
	epr(2)	.246	.120	4.214	1	.040	1.279
	epr(3)	-.299	.013	494.503	1	.000	.741
	epr(4)	-.486	.011	2106.120	1	.000	.615
	epr(5)	-.417	.003	16074.585	1	.000	.659
	epr(6)	-.408	.007	3210.440	1	.000	.665
	epr(7)	-.199	.008	565.256	1	.000	.820
	scc			1355.259	11	.000	
	scc(1)	-.149	.007	481.545	1	.000	.861
	scc(2)	-.092	.014	42.448	1	.000	.912
	scc(3)	-.132	.014	83.467	1	.000	.877
	scc(4)	-.674	.120	31.501	1	.000	.510
	scc(5)	-.704	.120	34.350	1	.000	.495
	scc(6)	-.468	.109	18.403	1	.000	.626
	scc(7)	-.493	.109	20.434	1	.000	.611
	scc(8)	-.546	.109	25.119	1	.000	.579
	scc(9)	-.634	.109	33.814	1	.000	.530
	scc(10)	-.559	.109	26.166	1	.000	.572
	scc(11)	-.645	.109	35.065	1	.000	.525
	gen(1)	-.228	.005	1878.187	1	.000	.796
	ScoMO	2.398	.016	21508.916	1	.000	11.004
	Constant	.188	.010	378.144	1	.000	1.207

Appendix M

Output for Hypothesis S: Combined Model for Satisfaction Scores

Table 1

Case Processing Summary for Hypothesis S: Combined Model for Satisfaction Scores

Unweighted Cases(a)		N	Percent
Selected Cases	Included in Analysis	3776	100.0
	Missing Cases	0	.0
	Total	3776	100.0
Unselected Cases		0	.0
Total		3776	100.0

a If weight is in effect, see classification table for the total number of cases.

Table 2

Dependent Variable Encoding for Hypothesis S: Combined Model for Satisfaction Scores

Original Value	Internal Value
0 VA	0
1 Contract	1

Table 3

Categorical Variables Codings for Hypothesis S: Combined Model for Satisfaction Scores

		Frequency	Parameter coding				
			(2)	(3)	(4)	(5)	(1)
reg Regional Areas	30 NE	1135	1.000	.000	.000	.000	.000
	31 SE	469	.000	1.000	.000	.000	.000
	32 NW	472	.000	.000	1.000	.000	.000
	33 SW	381	.000	.000	.000	1.000	.000
	34 NC (North Central)	751	.000	.000	.000	.000	1.000
	35 SC (South Central)	568	.000	.000	.000	.000	.000
mcg Medical Center Grouping (Parent Complexity)	0 1a	1071	1.000	.000	.000	.000	
	1 1b	691	.000	1.000	.000	.000	
	2 1c	683	.000	.000	1.000	.000	
	3 2	552	.000	.000	.000	1.000	
	4 3	779	.000	.000	.000	.000	
siz CBOC Size	0 Small	672	1.000	.000	.000		
	1 Medium	1025	.000	1.000	.000		
	2 Large	1071	.000	.000	1.000		
	3 X-Large	1008	.000	.000	.000		
uru Urban/Rural Status of CBOC Community	0 Urban	2476	1.000				
	1 Rural	1300	.000				

Table 4

Original Classification Table for Hypothesis S: Combined Model for Satisfaction Scores

	Observed		Predicted		
			Contract/VA		Percentage Correct
			0 VA	1 Contract	
Step 0	Contract/VA	0 VA	217665	0	100.0
		1 Contract	71199	0	.0
	Overall Percentage				75.4

a Constant is included in the model.
b The cut value is .500

Table 5

Original Variables in the Equation for Hypothesis S: Combined Model for Satisfaction Scores

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 0	Constant	-1.117	.004	66995.766	1	.000	.327

Table 6

Original Variables Not in the Equation for Hypothesis S: Combined Model for Satisfaction Scores

			Score	df	Sig.
Step 0	Variables	siz	18728.130	3	.000
		siz(1)	14568.313	1	.000
		siz(2)	23.452	1	.000
		siz(3)	6.148	1	.013
		mcg	6606.611	4	.000
		mcg(1)	691.239	1	.000
		mcg(2)	1856.492	1	.000
		mcg(3)	2555.254	1	.000
		mcg(4)	385.100	1	.000
		uru(1)	13103.563	1	.000
		pop	257.146	1	.000
		inc	12788.219	1	.000
		genp	3234.611	1	.000
		racep	1413.650	1	.000
		reg	17866.051	5	.000
		reg(1)	909.117	1	.000
		reg(2)	736.716	1	.000
		reg(3)	3090.284	1	.000
		reg(4)	83.736	1	.000
		reg(5)	2468.686	1	.000
		dis	435.390	1	.000
		scoAcc	152.409	1	.000
		scoCoC	35579.219	1	.000
		scoCou	119.873	1	.000
		scoEdu	1423.076	1	.000
		scoEmo	1026.308	1	.000
		scoOvCor	4540.157	1	.000
		scoViCor	42.796	1	.000
		sco_Pre	2764.353	1	.000

a Residual Chi-Squares are not computed because of redundancies.

Table 7

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	104182.405	26	.000
	Block	104182.405	26	.000
	Model	104182.405	26	.000

Table 8

Model Summary for Hypothesis S: Combined Model for Satisfaction Scores

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	218440.619 (a)	.303	.450

a Estimation terminated at iteration number 6 because parameter estimates changed by less than .001.

Table 9

Resultant Classification Table for Hypothesis S: Combined Model for Satisfaction Scores

			Predicted		
			Contract/VA		Percentage Correct
	Observed		0 VA	1 Contract	
Step 1	Contract/VA	0 VA	203117	14548	93.3
		1 Contract	33814	37385	52.5
	Overall Percentage				83.3

a The cut value is .500

Table 10

Variables in the Resultant Equation for Hypothesis S: Combined Model for Satisfaction Scores

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1(a)	siz			13958.893	3	.000	
	siz(1)	2.300	.021	12088.889	1	.000	9.971
	siz(2)	1.067	.019	3177.031	1	.000	2.907
	siz(3)	.577	.017	1099.363	1	.000	1.781
	mcg			6325.602	4	.000	
	mcg(1)	1.019	.018	3238.916	1	.000	2.771
	mcg(2)	.122	.020	38.010	1	.000	1.130
	mcg(3)	1.193	.018	4427.081	1	.000	3.297
	mcg(4)	.829	.019	1941.825	1	.000	2.292
	uru(1)	-.322	.014	541.622	1	.000	.725
	pop	.000	.000	210.361	1	.000	1.000
	inc	.000	.000	4707.096	1	.000	1.000
	genp	4.803	.230	436.805	1	.000	121.828
	racep	2.969	.070	1777.870	1	.000	19.476
	reg			14551.739	5	.000	
	reg(1)	-1.850	.021	7754.935	1	.000	.157
	reg(2)	-.366	.021	301.374	1	.000	.694
	reg(3)	-2.207	.026	7065.317	1	.000	.110
	reg(4)	-1.023	.025	1687.779	1	.000	.359
	reg(5)	-2.237	.022	10413.930	1	.000	.107
	dis	.000	.000	25.122	1	.000	1.000
	scoAcc	.039	.002	485.260	1	.000	1.039
	scoCoC	-.102	.001	22156.484	1	.000	.903
	scoCou	-.030	.003	111.085	1	.000	.971
	scoEdu	-.015	.002	68.641	1	.000	.985
	scoEmo	.051	.002	980.666	1	.000	1.052
	scoOvCor	.003	.002	3.396	1	.065	1.003
	scoViCor	.083	.002	1798.327	1	.000	1.086
	sco_Pre	-.044	.002	369.675	1	.000	.957
	Constant	-6.113	.310	388.253	1	.000	.002

a Variable(s) entered on step 1: siz, mcg, uru, pop, inc, genp, racep, reg, dis, scoAcc, scoCoC, scoCou, scoEdu, scoEmo, scoOvCor, scoViCor, sco_Pre.

BIBLIOGRAPHY

Belote, J. (2009). Searcy Cost Review Jan 09. Little Rock, AR: Prepared for Central Arkansas Veterans Healthcare System.

Borowsky, S. J., Nelson, D. B., Fortney, J. C., Hedeen, A. N., Bradley, J. L., & Chapko, M. K. (2002). VA community-based outpatient clinics: Performace meaures based on patient perceptions of care. *Medical Care* , 40 (7), 578-586.

Central Arkansas Veterans Healthcare System. (2008, September). White paper: Proposed community based outpatient clinic (CBOC) for Searcy, Arkansas. Little Rock, AR.

Chapko, M. K., Borowsky, S. J., Fortney, J. C., Heeden, A. N., Hoegle, M., Maciejewski, M. L., et al. (2002). Evaluation of the Department of Veterans Affairs community-based outpatient clinics. *Medical Care* , 40 (7): 555-560.

Department of Veterans Affairs. (2008). *VHA Handbook 1160.01, Uniform Mental Health Services in VA Medical Centers and Clinics.* Washington, DC: Veterans Health Administration.

Fortney, J. C. (2008, September). Telephone Conversation. (J. Belote, Interviewer)

Fortney, J. C., Borowsky, S. J., Maciejewski, M. L., & Chapko, M. K. (2002, July). VA community-based outpatient clinics: Access and utilization performance measures. *Medical Care* , 40 (7), 561-569.

Fortney, J. C., Maciejewski, M. L., Warren, J. J., & Burgess, J. F. (2005). Does improving geographic access to primary care services impact patients' pattern of utilization and costs? *Inquiry* , 42 (Spring), 29-42.

Health Services Research and Development Center of Excellence, VA Puget Sound Health Care System - Seattle Division. (1999). *CBOC performance evaluation project: CBOC characteristics.* VA Health Services Research and Development (HSR&D) Service Management Decision and Research Center (MDRC).

Hedeen, A. N., Heagerty, P. J., Fortney, J. C., Borowsky, S. J., Walder, D. J., & Chapko, M. K. (2002). VA community-based outpatient clinics: Quality of care performance measures. *Medical Care* , 40 (7), 570-577.

Katz, D. (1996, September 30). *Congress passes major health care eligibility reform for veterans.* Retrieved September 9, 2007, from House Committee on Veterans Affairs: http://veterans.house.gov/news/104/hr3118.htm

Kizer, K. W. (1996, March). *Prescription for change: The guiding principles and strategic objectives underlying the tranformation of the Veterans Healthcare System.* Retrieved

September 28, 2008, from United States Department of Veterans Affairs: http://www1.va.gov/vhareorg/ArcLib.htm

Kizer, K. W., Demakis, J. G., & Feussner, J. R. (2000). Reinventing VA health care: Systemizing quality improvevment and quality innovation. *Medical Care* , 38 (6) I7-I16.

Liu, C. F., Chapko, M. K., Perkins, M. W., Fortney, J. C., & Maciejewski, M. L. (2008). The impact of contract primary care on health care expenditures and quality of care. *Medical Care Research and Review* , 65(3), 300-314.

Liu, C.-F., Maciejewski, M. L., Chapko, M. K., & Fortney, J. C. (2005). Make or buy to provide primary care in the VA health system? [Abstract]. *Abstr Academy Health Meet.* Seattle: VA Puget Sound Health Care System.

Maciejewski, M. .., Perkins, M. W., Li, Y.-F., Chapko, M. K., Fortney, J. C., & Liu, C.-F. (2007). Utilization and expenditures of veterans obtaining primary care in community clinics and VA medical centers: an observational cohort study. *BMC Health Services Research* .

Maciejewski, M. L., Chapko, M. K., Hedeen, A. N., & Fortney, J. C. (2002). VA community-based outpatient clinics: Cost performance measures. *Medical Care* , 40 (7), 587-595.

Martin, D. R. (2008, September 26). CBOC Question (Email correspondence). (J. Belote, Interviewer)

Office of Quality and Performance. (2008, August 13). *SHEP: Overview and Transition to CAHPS.* Retrieved December 18, 2008, from OQP: http://vaww.oqp.med.va.gov/oqp_services/veterans_satisfaction/uploads/SHEP_Quality_Kickoff%20fnl2.ppt

Office of Quality and Performance. (2006). *Table of Targets and Measures for FY2007.* Retrieved 04 03, 2009, from Office of Quality and Performance: http://www.va.gov/budget/report/2008/PartI/Performance_Summaries_by_Strategic_Goal.pdf

Office of Quality and Performance. (2007). *Table of Targets and Measures for FY2008.* Retrieved April 3, 2009, from Office of Quality and Performance: http://vaww.oqp.med.va.gov/oqp_services/performance_measurement/tech_man.asp#TablesTM

Office of Quality and Performance. (2009, March 30). *Table of Targets and Measures for FY2009.* Retrieved April 6, 2009, from Office of Quality and Performance: http://vaww.oqp.med.va.gov/oqp_services/performance_measurement/tech_man.asp#TablesTM

Perlin, J. B., Kolodner, R. M., & Roswell, R. H. (2004). The Veterans Healthcare Administration (VHA): Quality, value, accountability, and information as transforming strategies for patient-centered care. *The American Journal of Managed Care* , 828-836.

Stephens, T. (2008, September 23). EPRP Data at CBOCs. (J. Belote, Interviewer)

United States Deparment of Veterans Affairs. (2008, July 14). VHA directive 2008-034: Strategic planning proces. Washington, DC.

United States Department of Veterans Affairs. (n.d.). *Data Definitions for Missed Clinic Rates.* Retrieved April 21, 2009, from VHA Support Service Center (VSSC): http://vhaaacweb9.vha.med.va.gov/regina_web/vssc_links.aspx?RPT_ID=385&index=1

United States Department of Veterans Affairs. (2009, March 9). *Data Definitions for Monthly Performance Review (MPR) - Final Wait Times (Completed Appointments).* Retrieved April 21, 2009, from VHA Support Service Center (VSSC): http://vhaaacweb9.vha.med.va.gov/regina_web/vssc_links.aspx?RPT_ID=405&index=1

United States Department of Veterans Affairs Office of Inspector General. (2008, December 4). *Audit of Veterans Health Administration's Efforts to Reduce Unused Outpatient Appointments.* Retrieved April 5, 2009, from VA Office of Inspector General: http://www.va.gov/oig/52/reports/2009/VAOIG-08-00879-36.pdf

United States Department of Veterans Affairs. (2007, December). *SHEP Scores October 2007-December 2007: Technical Notes.* Retrieved November 11, 2008, from Office of Quality Performance.

United States Department of Veterans Affairs. (2008, August 22). VHA directive 2008-048: Assignment of station number suffix identifiers for community-based outpatient clinics (CBOCs). Washington, DC: Department of Veterans Affairs.

United States Department of Veterans Affairs: Office of Budget. (2008, November 17). *Fiscal Year 2008 Performance and Accountability Report Part 1: Performance Summaries by Strategic Goal.* Retrieved April 5, 2009, from United States Department of Veterans Affairs: http://www.va.gov/budget/report/2008/PartI/Performance_Summaries_by_Strategic_Goal.pdf

United States General Accounting Office. (2003, May 8). *Department of Veterans Affairs: Key management challenges in health and disability programs (GAO-03-756T).* Retrieved September 20, 2008, from GAO: http://www.gao.gov/docsearch/locate?to=http%3A%2F%2Fwww.gao.gov%2Fnew.items%2Fd03756t.pdf

Veterans Health Administration. (2008). *Executive Career Field (ECF) Performance Plan Performance Measures Fiscal Year 2009.*

Wright, S. M. (2009, April 9). SHEP: Overview and Transition to CAHPS. Office of Quality and Performance.

Zeiss, A. M., & Karlin, B. E. (2008). Integrating mental health and primary care services in the Department of Veterans Affairs health care system. *Journal of Clinical Psychology Medical Settings* , 73-78.

Zhou, X., Qin, G., & Maciejewski, M. (2006). Estimating the VA total health care cost using a semi-parametric heteroscedastic two-part model. *Health Serv Outcomes Res Methods* , 6: 69-80.