AMI COHORT—EFFECT OF FACILITY CHARACTERISTICS

Effect of Facility Characteristics for VA Patients with AMI

Prior research has documented a strong relationship between availability of invasive cardiac services at the facility to which AMI patients are first admitted and their likelihood of receiving a procedure in both VA and non-VA sectors. In addition, volume of AMI patients treated at a facility has been shown to be related to mortality following an AMI. In this section, we describe a set of analyses aimed at estimating access to invasive procedures and the effect of access on utilization and mortality. We examine VA cohorts representing male and female veterans of all ages and differences between VA and Medicare patients using the matched cohorts of male veterans and Medicare beneficiaries age 65 and older (see section A for detailed description of cohorts).

Methods

Characterization of VA Facilities

We calculated the volume of AMI patients using the PTF for VA facilities and Medicare hospital inpatient file for the non-VHA facilities. AMI volume was calculated for each year as the number of discharges with a primary diagnosis of AMI (ICD-9 code 410, excluding 410.x2) among patients age 65 and older. We determined a hospital's capability to perform cardiac catheterization, percutaneous coronary interventions (PCI) or coronary artery bypass surgery (CABG) based on data contained in PTF and OPC files for the VA facilities and from hospital inpatient, hospital outpatient and Part B (physician/supplier) files for the non-VA facilities. We counted the number of claims for each of these procedures for patients with a diagnosis of ischemic heart disease (ICD-9 codes 410-414) and considered a hospital as having cardiac

catheterization facilities if there were 5 or more claims for catheterization within a given year; we coded a hospital as having percutaneous intervention (PCI) or coronary artery bypass surgery (CABG) capabilities if 10 or more of these procedures were performed within a given year (McClellan, McNeil et al. 1994). We then created binary variables to indicate whether or not VA and Medicare patients were admitted to a high volume facility (more than 2.8, 3.0, and 2.6 AMI admissions per week in FY 1997, 1998, and 1999 respectively, the upper quartile in the distribution across all non-VHA facilities), a low volume facility (fewer than 1.2, 1.2, and 1.6 AMI admissions per week in FY 1997, 1998 and 1999, respectively, the lower quartile in the distribution across all non-VHA facilities), a facility with catheterization capabilities, a facility with PCI capabilities, and a facility with CABG capabilities. If a VA patient was initially admitted to a non-VA hospital covered under Medicare, but was then subsequently transferred to a VA facility, we linked the patient to the non-VA hospital in which he was first admitted. Similarly, VA patients initially admitted to a VA facility and then transferred for care under Medicare were associated with the VA facility. These analyses exclude VA patients admitted to a non-VA facility that we could not identify due to hospital identifiers in the VA data files that did not link to a hospital in the private sector.

Comparison of Access to Invasive Procedures within the VA

We further described access to invasive procedures at each of the VHA facilities admitting at least 5 AMI patients in any of the four fiscal years (FY 1994, 1997, 1998, and 1999) by plotting the distribution of number of procedures (cardiac catheterization and CABG) performed by day of the week (Figures F1 and F2). Based on these distributions, we determined that a facility did not provide full access to a procedure if fewer than 10% of the total procedures were performed on one or more weekday. (For example, in Figure F1 hospital 689 in VISN 1

performed fewer than 10% of its 365 cardiac catheterization procedures in FY 1999 on a

Monday; thus patients treated in that facility had limited access to catheterization on Mondays.

We then categorized facilities as i) full providers of catheterization and CABG (15 facilities

[10%] in FY 1999); ii) full providers of catheterization but only partial providers of CABG (19

facilities [13%] in FY 1999); iii) full providers of catheterization without any CABG capabilities

(22 facilities [15%] in FY 1999); iv) partial providers of catheterization but either no access or

only partial access to CABG (24 facilities [17%] in FY 1999); and v) facility provides neither

catheterization nor CABG (65 facilities [45%] in FY 1999).

For AMI patients we then examined utilization of invasive procedures (use of cardiac

catheterization within 30 days, use of PCI within 30 days, use of CABG within 30 days, use of

any revascularization procedure in 30 days) and patient outcomes (30 day mortality and 1 year

mortality) according to the type of admitting facility. We fit a series of logistic regression

models to estimate differences according to facility type, adjusting for differences in the

characteristics of patients across the different types of facilities. The models adjusted for the age

and race of the patient, year of discharge, VISN, a set of socioeconomic variables based on the

zip code of the patient's residence (see Tables AF1-AF3), and a set of 37 clinical variables based

on primary and secondary diagnoses codes from inpatient encounters from the index admission

as well as from the prior year (see Tables AF1-AF3). We estimated models using generalized

estimating equations (Zeger and Liang 1986) to adjust for correlation among patient outcomes

within a facility.

Comparison of Access to Invasive Procedures Between VA and Medicare Patients with AMI

First we examined differences in the characteristics of facilities to which VA and

Medicare patients were first admitted. We compare two structural characteristics of the

admitting hospital, volume of AMI patients and on-site capabilities to perform invasive cardiac procedures, using the matched cohorts previously described (Section A). We test for differences in the proportion of patients admitted to different types of facilities using chi-square tests and note significant differences on the 10% level.

To determine if differences in utilization and mortality observed between VA and Medicare patients persist even when comparing patients admitted to similar types of facilities, we repeated our comparative analyses using only VA and Medicare patients who were admitted to a facility with on-site capability to perform cardiac catheterization, PCI, and CABG (4,760 VA and 154,073 Medicare patients). Matched cohorts were created and analyzed as described in section A. We were able to successfully match at least 96% of the VA patients admitted to full service facilities in each year with a similar Medicare patient. We analyzed 1517, 1556, and 1588 matched pairs of AMI patients in FY 1997, 1998 and 1999 respectively

RESULTS

Comparison of Access to Invasive Procedures within the VA

The distributions of number of procedures performed for patients with ischemic heart disease according to day of the week for each facility in FY 1999 are displayed in Figures F1 and F2. These plots demonstrate that there are a significant number of VHA facilities that provided fewer numbers of procedures on certain days of the week and suggest that some facilities have the capabilities to perform invasive services, but are limited by staffing or other resources from making full use of their capabilities. The numbers of facilities categorized according to the level of services provided in each fiscal year are reported in Table F1. We estimated that in FY 1999 over half (43 out of 80) of the VA facilities with some invasive capabilities were performing only a limited number of procedures on certain days of the week and therefore, were not operating at full capacity.

Table F1: Distribution of Hospital Types by Fiscal Year

Fiscal Year	Full Cath/ Full CABG	Full Cath/ Partial CABG	Full Cath/ No CABG	Partial Cath/ Partial or no CABG	No Services	All Types
FY 1994	17 (10%)	22 (14%)	20 (12%)	20 (12%)	83 (51%)	162
FY 1997	17 (11%)	22 (14%)	20 (13%)	22 (14%)	74 (48%)	155
FY 1998	12 (8%)	24 (16%)	23 (15%)	21 (14%)	71 (47%)	151
FY 1999	15 (10%)	19 (13%)	22 (15%)	24 (17%)	65 (45%)	145

Unadjusted and adjusted utilization of invasive procedures and mortality rates among VA AMI patients according to availability of services at the admitting hospital are reported in Table F2 and F3. Level of access to invasive procedures at VHA hospitals was significantly related to use of catheterization, PCI, and overall revascularization (PCI or CABG) procedures. Patients admitted to a full service VA facility were also more likely to undergo CABG than those admitted to a VA facility with neither catheterization nor CABG capabilities. However, differences in 30 day mortality and 1 year mortality were smaller (less than 2 percentage point difference between different types of facilities) and not statistically significant.

Table F2: Unadjusted Utilization and Outcomes of VA Patients with AMI
According to Type of Admitting Hospital
FY 1994, 1997-1999 VA Cohorts (Males age 65 and older)

	Full Cath/ Full CABG	Full Cath/ Partial CABG	Full Cath/ No CABG	Partial Cath/ Partial or No CABG	No Services	Overall
Number of Patients	2810 (15%)	3847 (21%)	3147 (17%)	3257 (17%)	1459 (30%)	18,722
Catheterization within 30 Days	48.3%	52.4%	42.0%	37.2%	27.6%	39.9%
CABG within 30 Days	9.2%	9.7%	7.7%	7.7%	8.7%	8.4%
PCI within 30 Days	18.0%	19.1%	11.9%	10.6%	7.9%	12.9%
Revascularization within 30 Days	26.7%	27.4%	19.2%	18.1%	16.3%	20.9%
30 Day Mortality	16.0%	16.1%	16.6%	15.8%	16.8%	16.3%
1 year Mortality	33.9%	32.7%	34.1%	33.9%	34.3%	33.8%

**Table F3 Adjusted[a] Utilization and Outcomes of VA Patients with AMI
According to Type of Admitting Hospital:
FY 1994, 1997-1999 VA Cohorts (Males age 65 and older)**

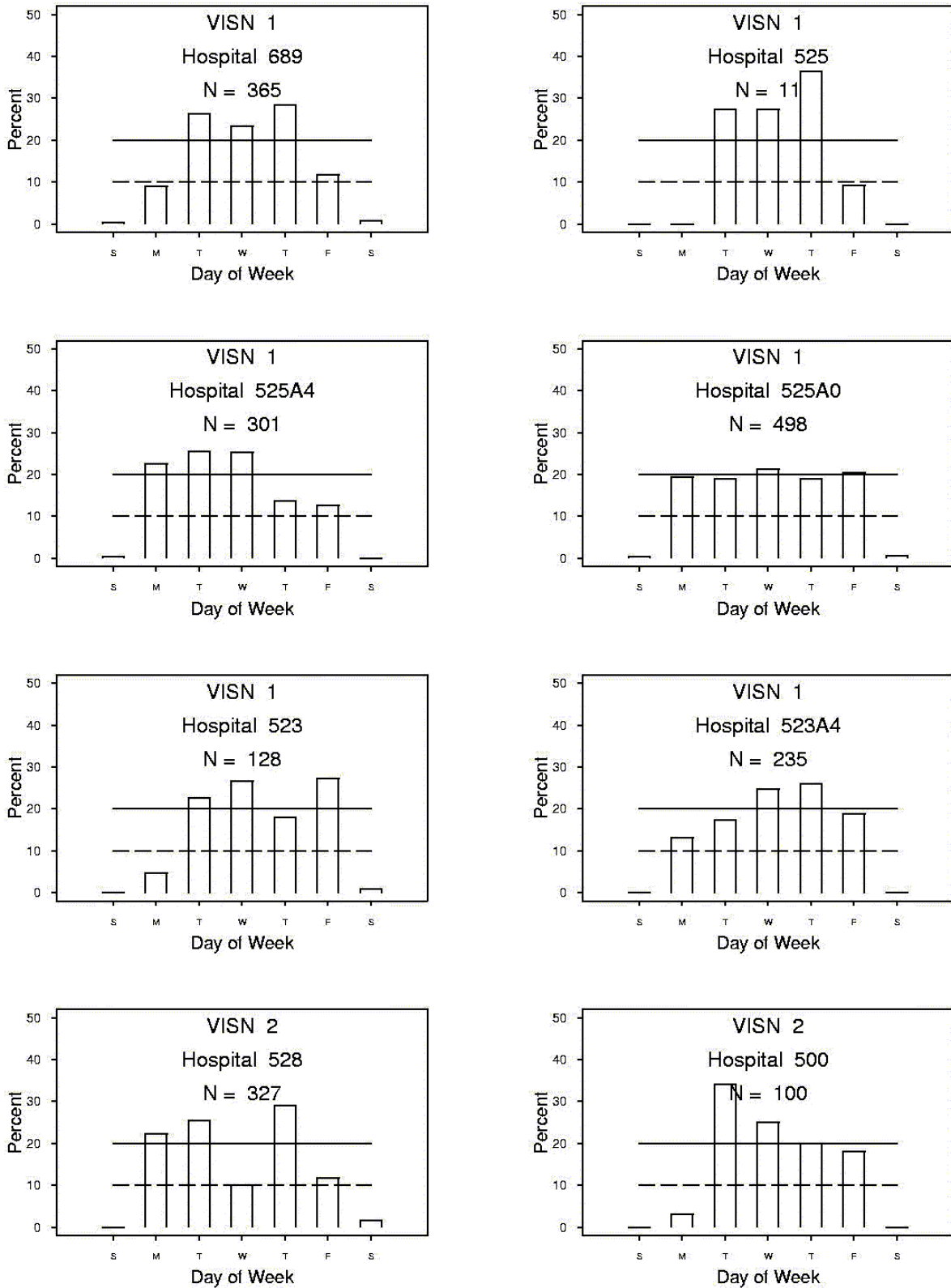|	Full Cath/ Full CABG	Full Cath/ Partial CABG	Full Cath/ No CABG	Partial Cath/ Partial CABG	No Services
Number Patients	2810 (15%)	3847 (21%)	3147 (17%)	3257 (17%)	1459 (30%)
Catheterization within 30 Days	**52.3%**	**51.5%**	**47.7%**	**40.5%**	26.6%
CABG within 30 Days	**7.9%**	6.9%	6.7%	6.4%	6.7%
PCI within 30 Days	**15.9%**	**15.3%**	**12.6%**	**10.4%**	7.0%
Revascularization within 30 Days	**25.1%**	**23.7%**	**20.6%**	**18.0%**	14.2%
30 Day Mortality	14.7%	14.4%	15.4%	13.6%	15.0%
1 year Mortality	33.1%	32.3%	33.7%	31.7%	32.4%

[a] Adjusted for age, race, year of discharge, VISN, a set of socioeconomic variables based on the zip code of the patient's residence (see Tables AF1-AF3), and a set of 37 clinical variables based on primary and secondary diagnoses codes from inpatient encounters from the index admission as well as from the prior year (see Tables AF1-AF3).

Bolded numbers represent significant differences at 10% level in utilization or outcomes among patient admitted to facility type compared to those admitted to a facility that provides no onsite invasive services.

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

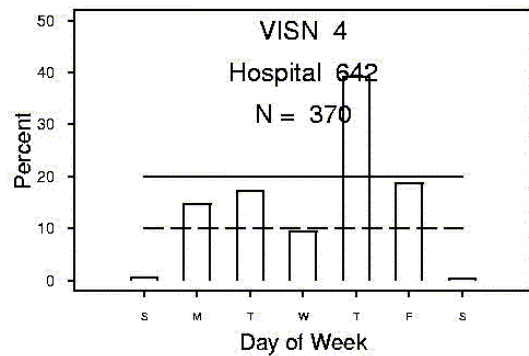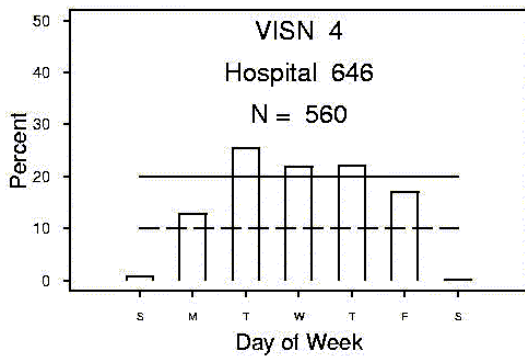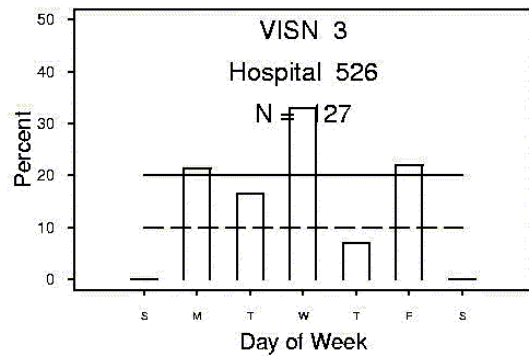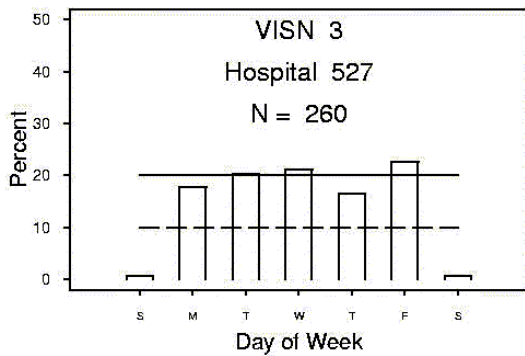Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA
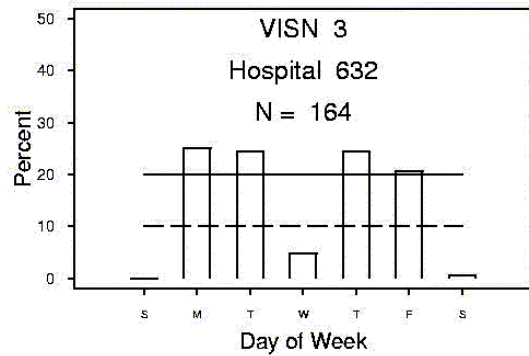
Figure F1

Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

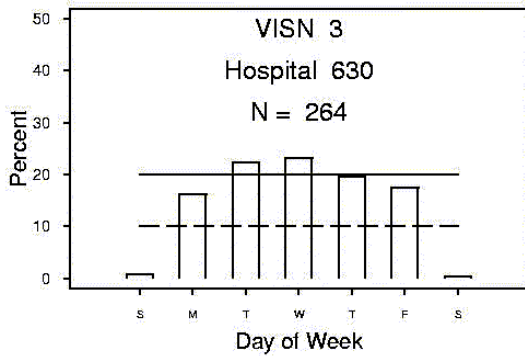### Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

Number of Catherizations by Day of Week
FY 1999

Figure F1

Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

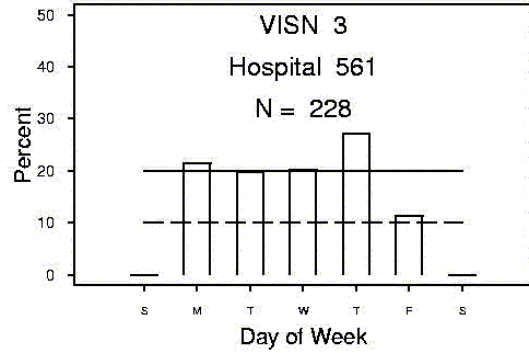## Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

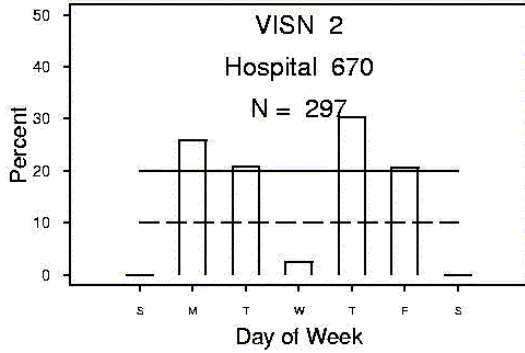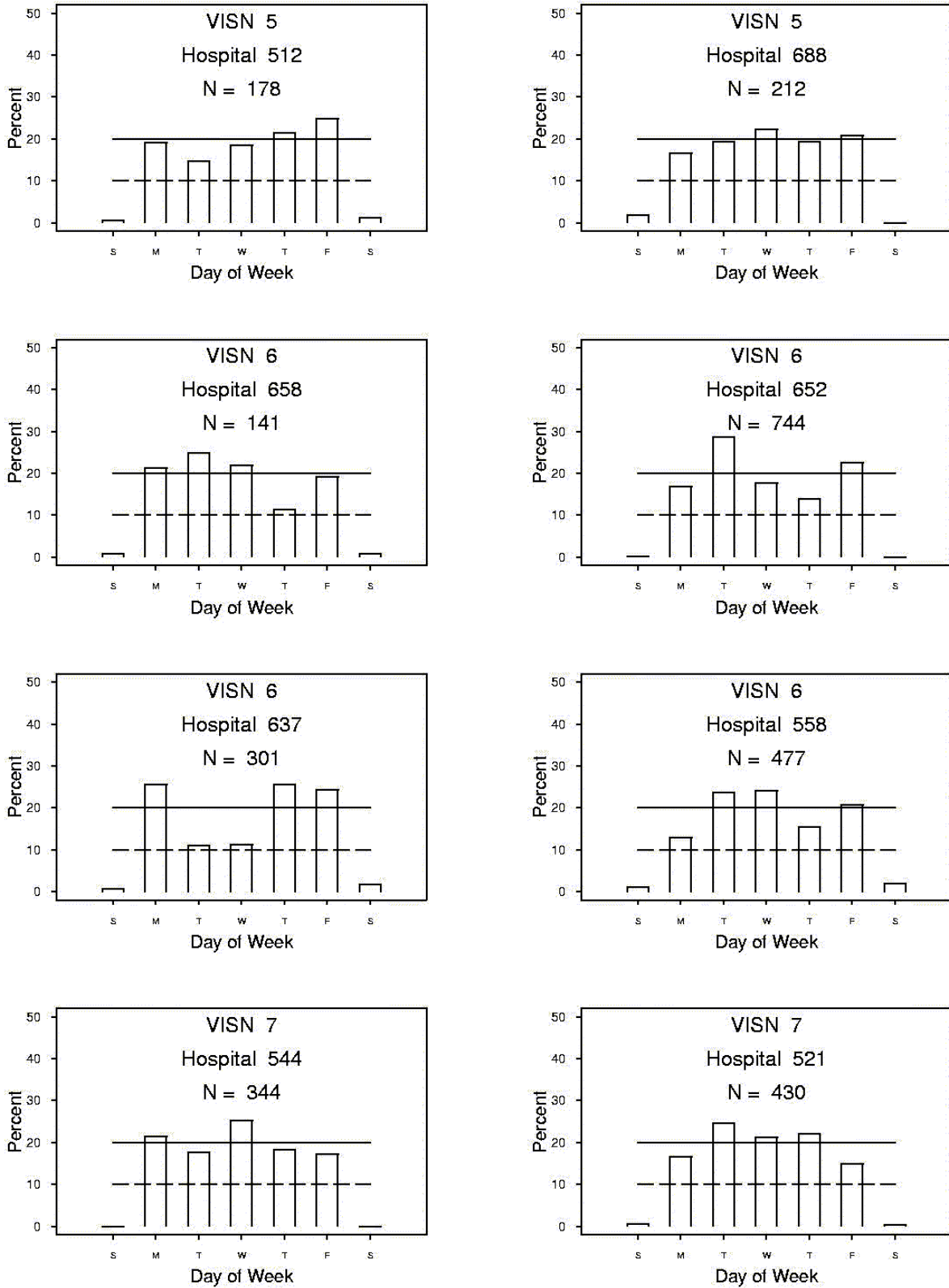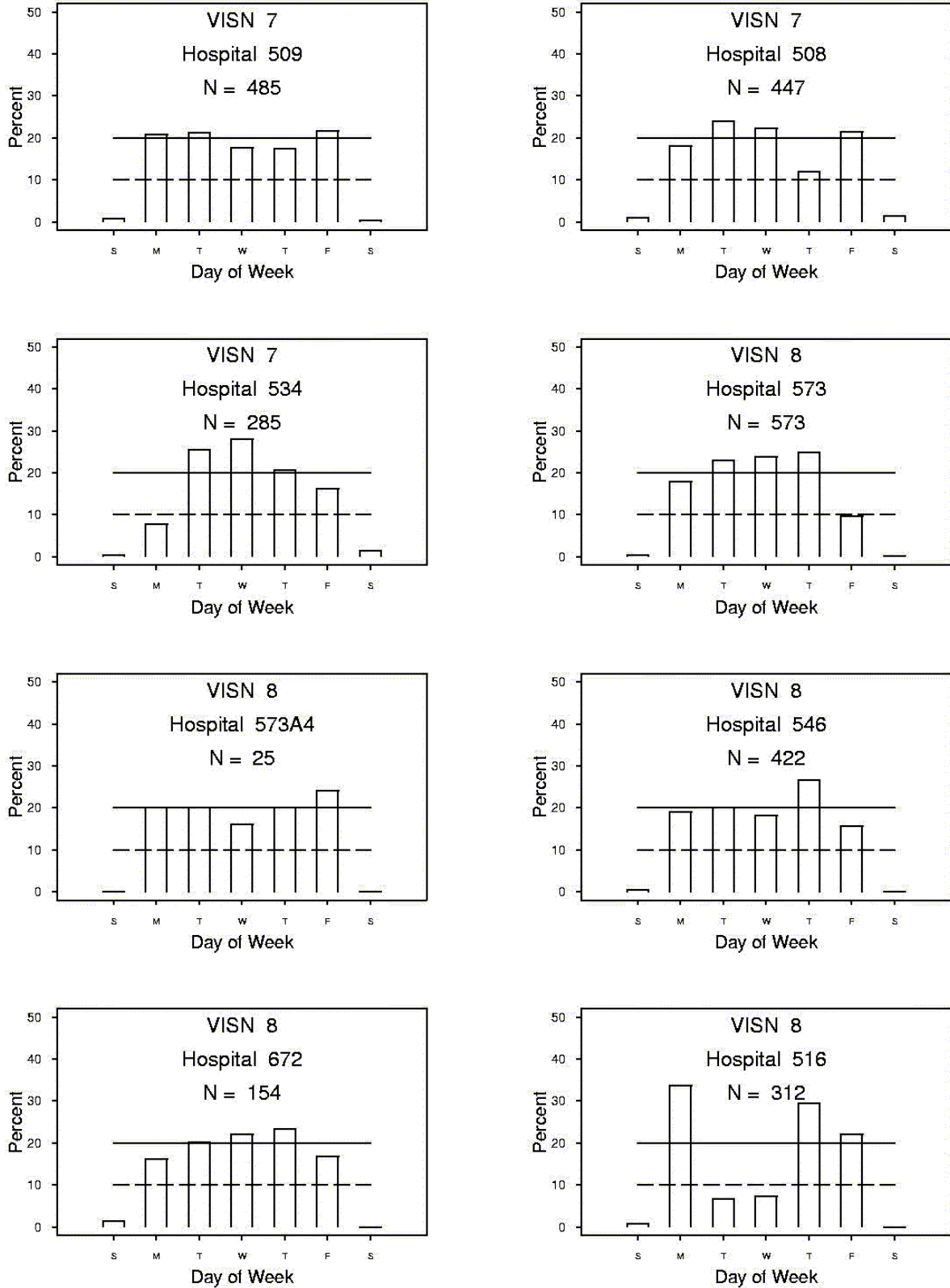Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

Number of Catherizations by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F1

Number of Catherizations by Day of Week
FY 1999

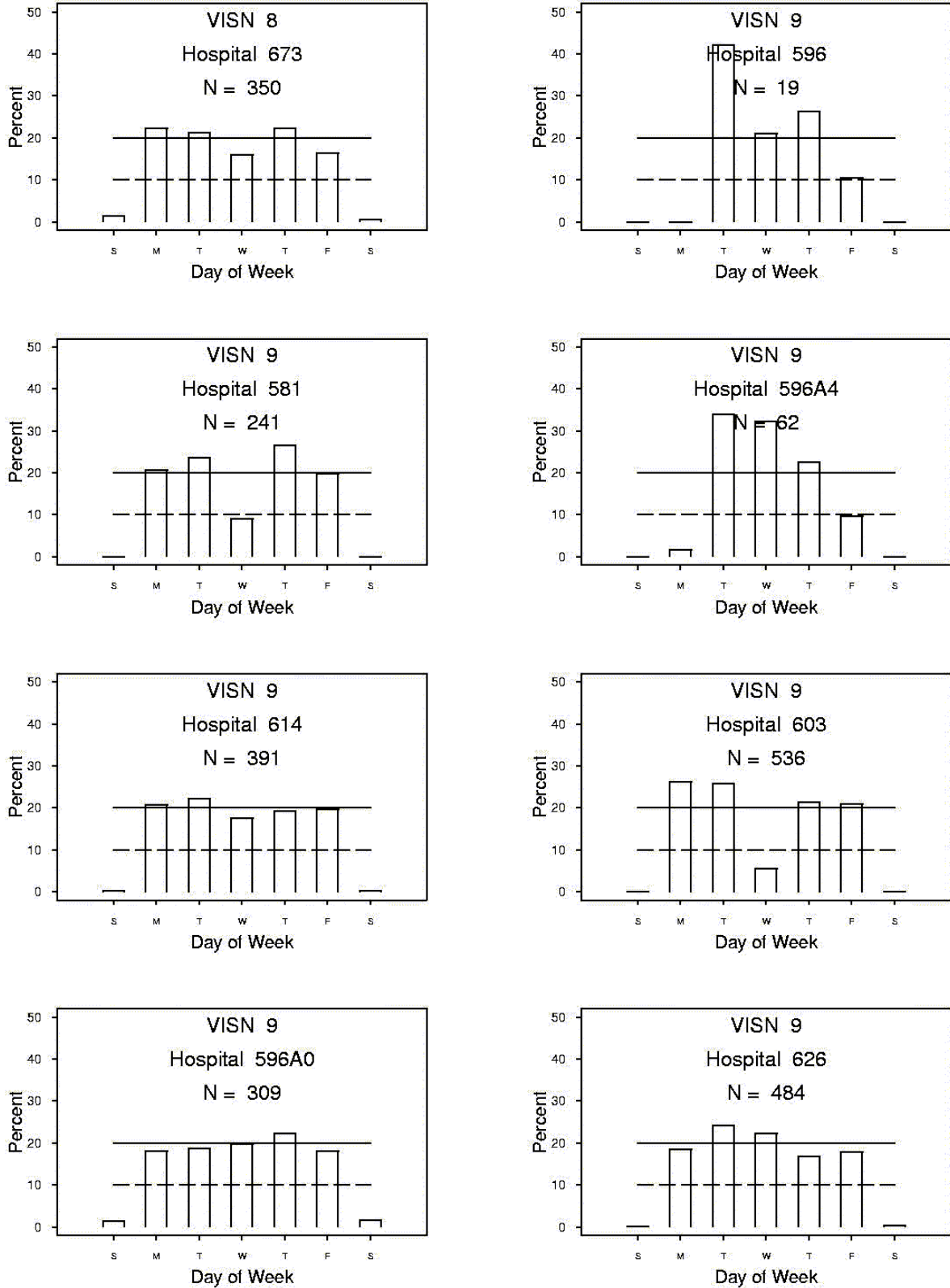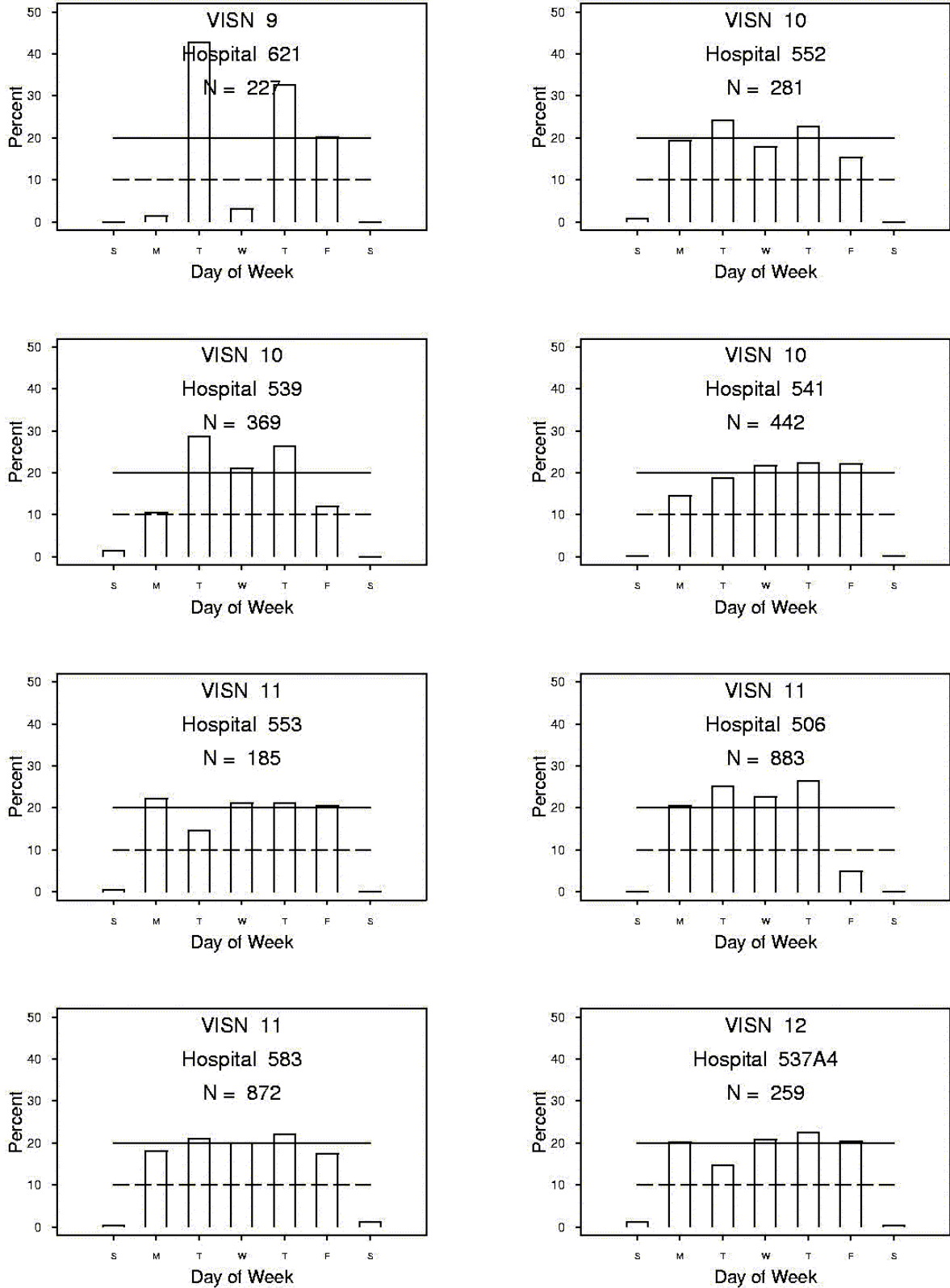# Program Evaluation of Cardiac Care Programs in the VHA

Figure F2

Number of CABGs by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F2

Number of CABGs by Day of Week
FY 1999

Program Evaluation of Cardiac Care Programs in the VHA

Figure F2

Number of CABGs by Day of Week
FY 1999

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Program Evaluation of Cardiac Care Programs in the VHA

Figure F2

Number of CABGs by Day of Week
FY 1999

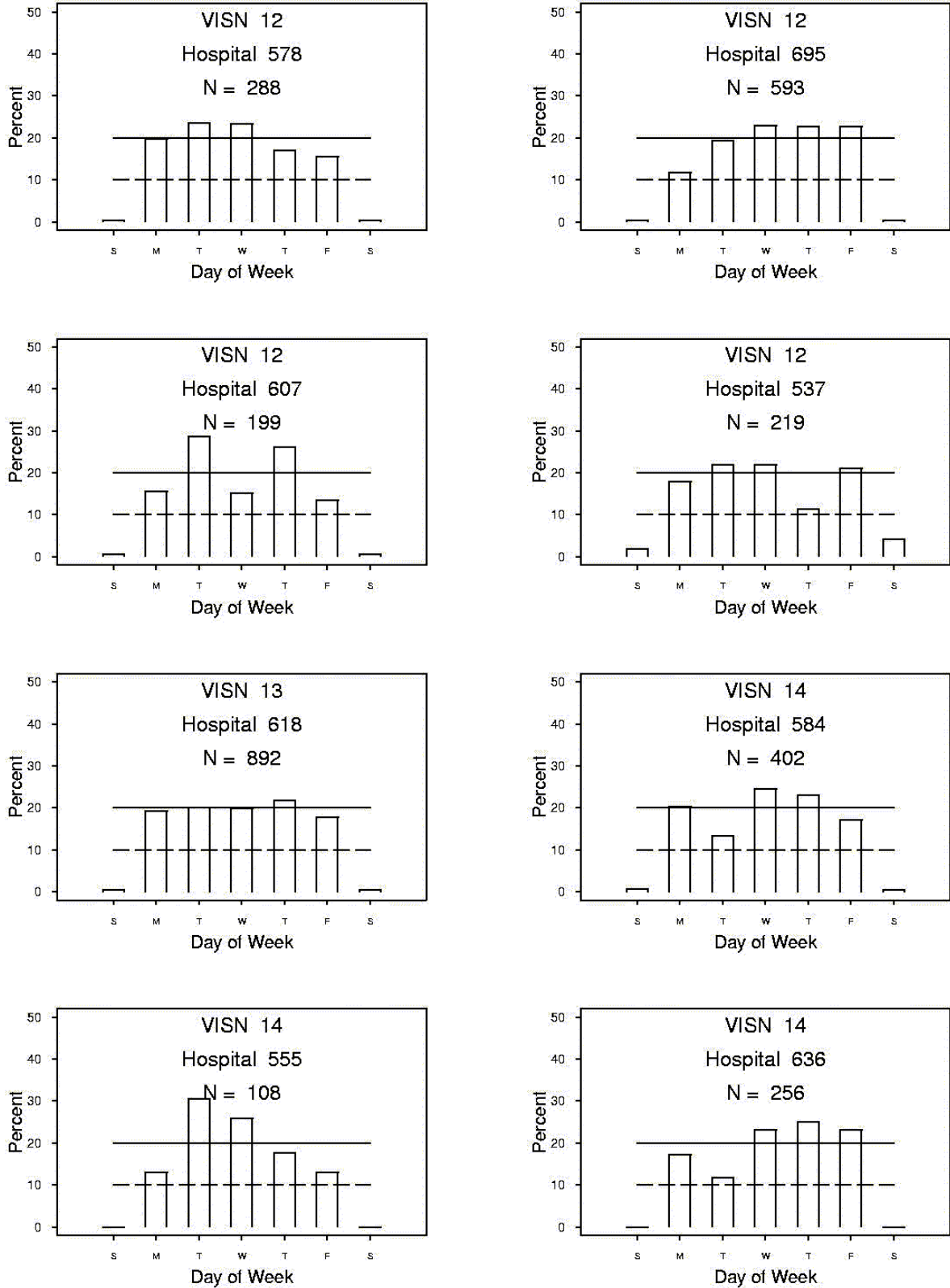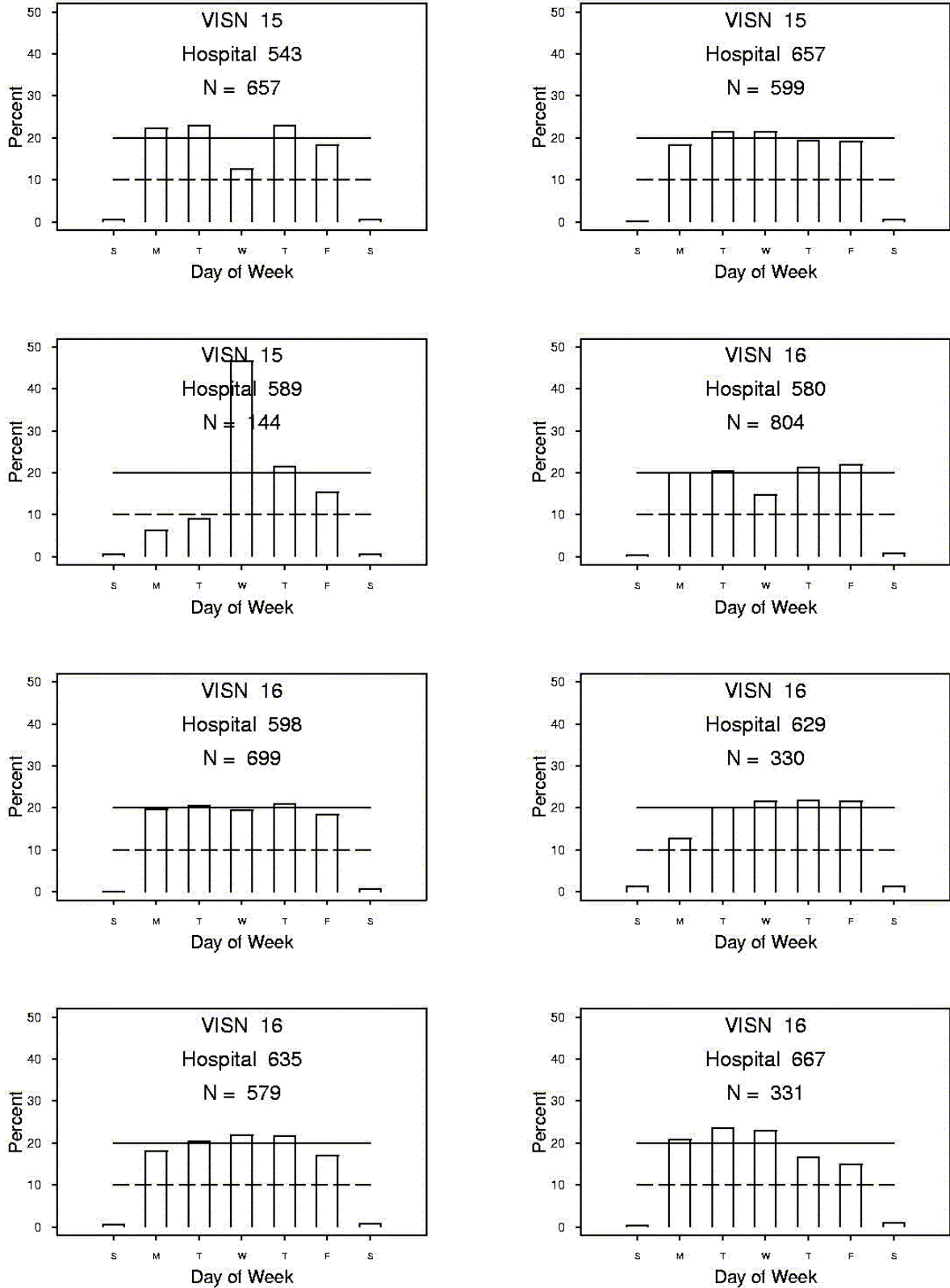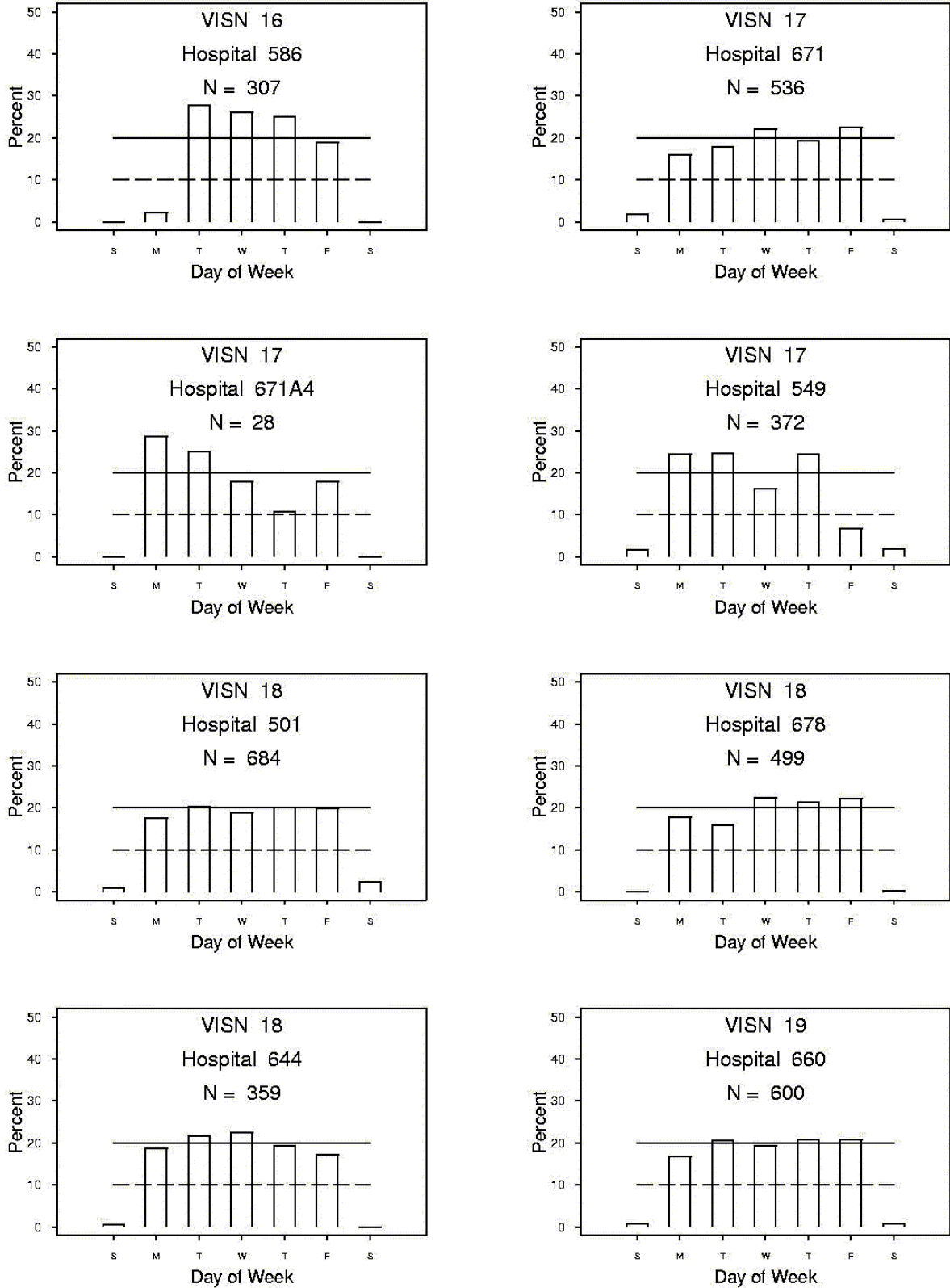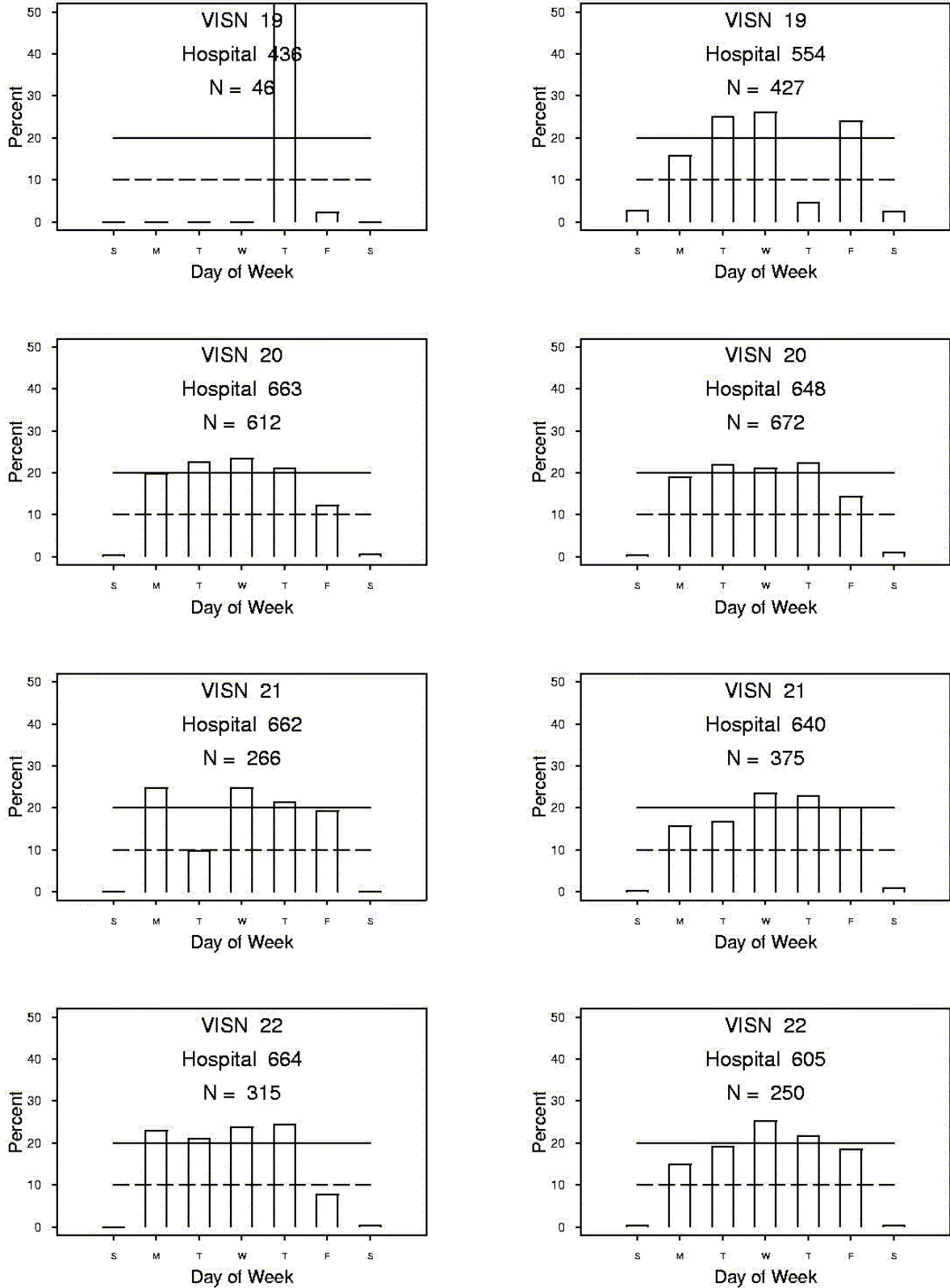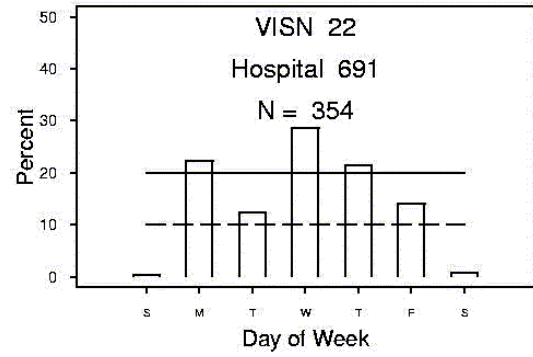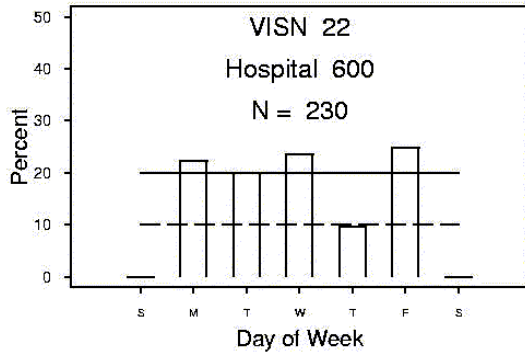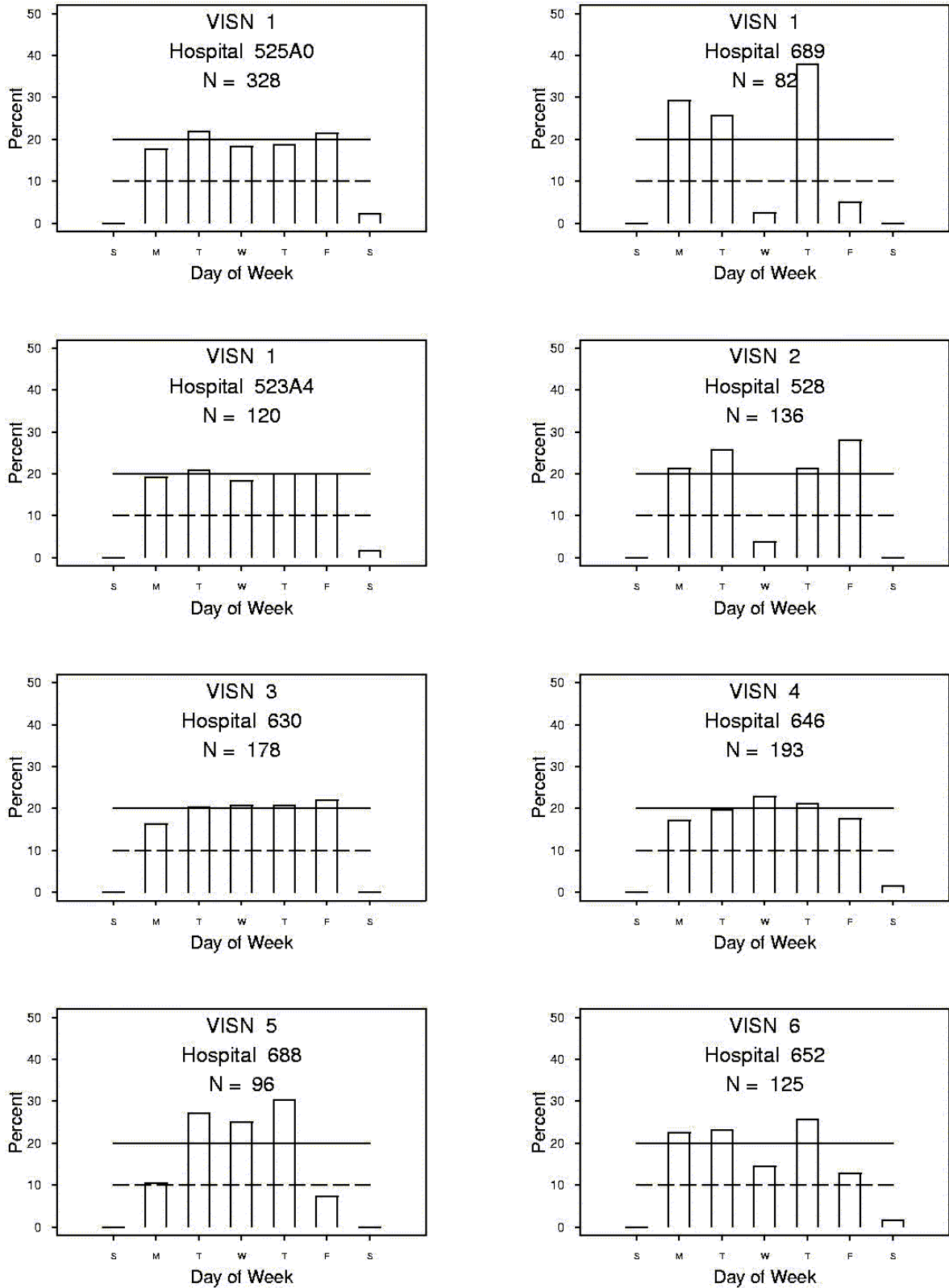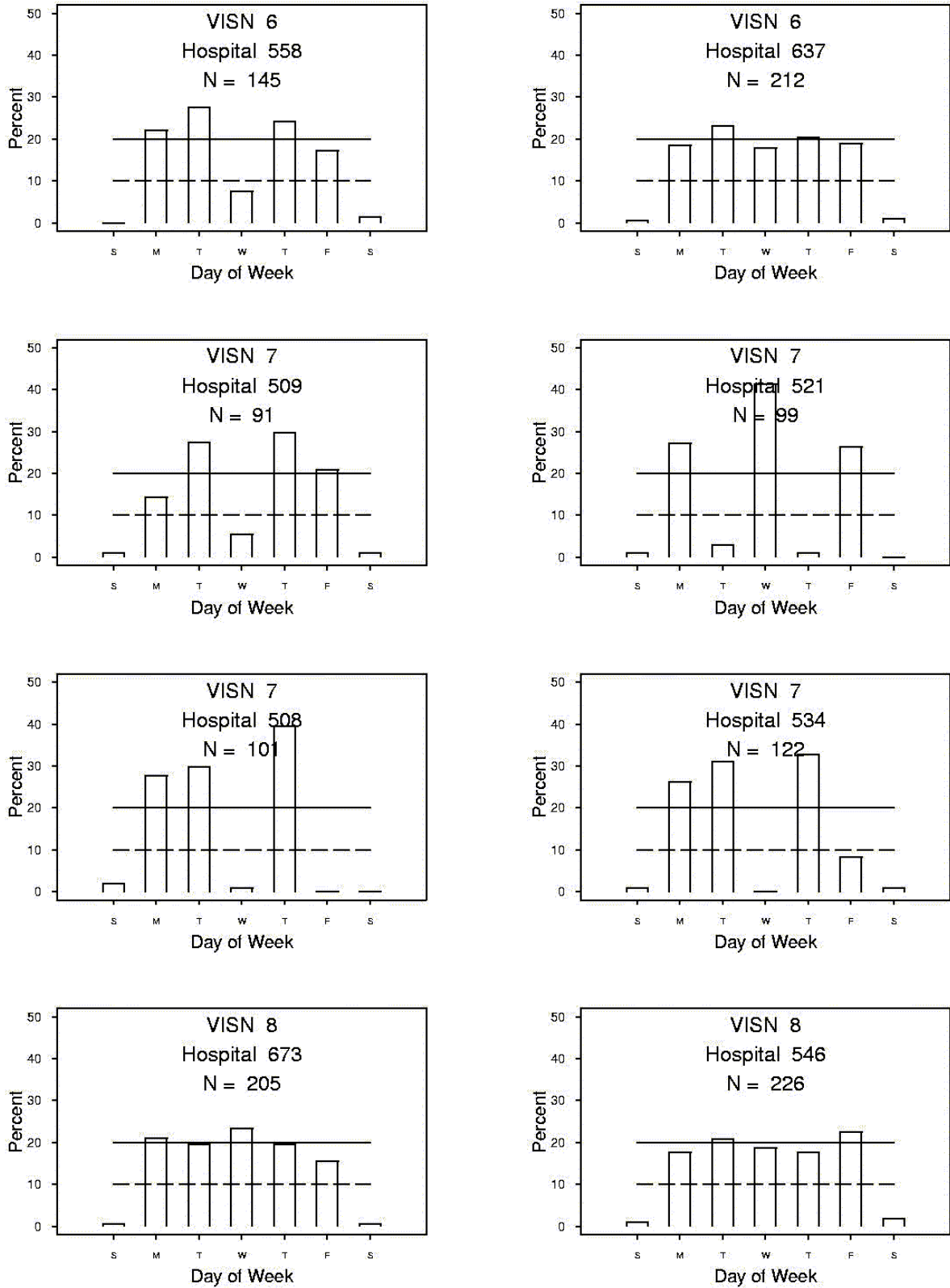**Program Evaluation of Cardiac Care Programs in the VHA**

Figure F2

Number of CABGs by Day of Week
FY 1999

Figure F2

Number of CABGs by Day of Week
FY 1999

Comparison of Access to Invasive Procedures Between VA and Medicare Patients

The proportion of patients admitted to high and low volume hospitals and the proportion admitted to hospitals with varying levels of invasive capabilities according to fiscal year are reported in Table F4. In each year, elderly VA patients were much less likely to be admitted to high volume facilities with the ability to perform invasive cardiac procedures than matched Medicare patients.

Socio-demographic and clinical characteristics of the FY 1997, 1998, and 1999 VA (male patients age 65 and older) and Medicare cohorts, including only patients admitted to a full service facility are reported in Tables AF1, AF2, AF3. Characteristics of the patients prior to matching are reported in the second and third columns. Characteristics of the matched cohorts are reported in the last two columns. As with patients admitted to all hospital types, patients with AMI treated in a full service VA facility were younger, but were more likely to have comorbid disease compared to Medicare patients with AMI treated in similar facilities. After matching, the cohorts were more similar, allowing us to make more valid comparisons of procedure utilization and outcomes in the two systems.

Differences in receipt of invasive procedures and outcomes in matched VA and Medicare AMI patients admitted to full service facilities are reported in Table F5. While utilization rates are higher in both systems of care, large differences in the use of procedures remain. Mortality differences were of similar magnitude as those observed in patients admitted to all types of facilities. Limiting the sample to only patients admitted to a full service facility reduced power to detect differences between the two systems. Thus while the differences in 30-day and 1-year mortality between the two systems in the FY 1999 cohort were of similar magnitude as those

observed in patients admitted to all types of facilities, they were no longer statistically

significant.

Table F4: Structure of AMI Care
Among Matched Patients Treated in VHA and Under Medicare
FY 1997-1999 Cohorts (Males age 65 and over)[a]

	FY 1997			FY 1998			FY 1999		
	VA (N=4092)	Medicare (N=4384)	P-value	VA (N=4357)	Medicare (N=4667)	P-value	VA (N=4565)	Medicare (N=4881)	P-value
Admitted to High Volume Facility (%)	9.6	42.0	<0.001	14.8	44.4	<0.001	24.6	45.2	<0.001
Admitted to a Low Volume (%)	15.4	14.3	0.16	8.9	13.2	<0.001	8.0	13.7	<0.001
Admitted to Facility with Catheterization capabilities (%)	68.0	75.7	<0.001	68.4	76.3	<0.001	69.1	77.1	<0.001
Admitted to Facility with PCI capabilities (%)	47.2	51.8	<0.001	47.6	53.1	<0.001	48.1	54.3	<0.001
Admitted to Facility with CABG Capabilities (%)	40.1	49.5	<0.001	38.1	50.9	<0.001	37.4	51.6	<0.001

[a] Distance to the admitting hospital is NOT included in the matching algorithm for these cohorts.

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Table F5
Utilization and Outcomes of Patients Admitted to Full Service Facilities:
FY 1997, 1998 and 1999 VA and Medicare Matched Cohorts
Males age 65 and older

	FY 1997			FY 1998			FY 1999		
	VA (n=1517)	MED (n=1517)	p-value	VA (n=1556)	MED (n=1556)	p-value	VA (n=1588)	MED (n=1588)	p-value
Cath within 30 Days (%)	**49.0**	**68.0**	**<.0001**	**47.8**	**71.0**	**<.0001**	**48.4**	**72.9**	**<.0001**
CABG within 30 Days (%)	**8.1**	**20.0**	**<.0001**	**6.6**	**19.2**	**<.0001**	**7.4**	**17.7**	**<.0001**
PCI within 30 Days (%)	**16.7**	**33.1**	**<.0001**	**20.2**	**37.2**	**<.0001**	**20.9**	**40.9**	**<.0001**
% PCI with stent	51.6	52.4	0.83	70.5	75.1	0.13	84.0	82.6	0.57
Revasc within 30 Days (%)	**24.5**	**50.9**	**<.0001**	**26.3**	**54.9**	**<.0001**	**28.1**	**56.2**	**<.0001**
Length of Stay (Days)	**11.1**	**9.6**	**<.0001**	**10.5**	**9.0**	**<.0001**	**10.3**	**8.7**	**<.0001**
30 day mortality	**17.9**	**12.8**	**<.0001**	16.0	14.7	0.30	15.1	13.8	0.29
1 year mortality	**35.6**	**26.6**	**<.0001**	**33.5**	**27.1**	**<.0001**	33.1	28.4	0.13
2 year mortality	**44.6**	**34.5**	**<.0001**	**43.6**	**34.1**	**<.0001**	NA	NA	NA
3 year mortality	**50.8**	**40.3**	**<.0001**	NA	NA	NA	NA	NA	NA
30 Day Readmit: CHF	1.7	2.1	0.43	1.7	1.7	0.89	2.5	2.5	0.91
30 Day Readmit: IHD	**5.5**	**3.2**	**<.0001**	**5.7**	**3.0**	**.0003**	**4.5**	**3.0**	**0.02**
6 Month Readmit: CHF	8.0	7.1	0.34	7.3	6.9	0.68	8.3	8.9	0.67
6 Month Readmit: AMI	**7.2**	**5.5**	**0.06**	**8.2**	**5.2**	**.0008**	7.7	6.2	0.22
6 Month Readmit: IHD	**15.4**	**9.6**	**<.0001**	**14.7**	**9.6**	**<.0001**	**14.1**	**9.4**	**0.002**
6 Month Readmit: All Causes	**25.0**	**19.2**	**<.0001**	**25.4**	**19.3**	**<.0001**	**26.7**	**21.5**	**0.009**

Bolded numbers represent significant differences at 10% level.

References

McClellan, M., B. J. McNeil, et al. (1994). "Does more intensive treatment of acute myocardial infarction in the elderly reduce mortality? Analysis using instrumental variables." <u>JAMA</u> **272**(11): 859-66.

Zeger, S. L. and K. Y. Liang (1986). "Longitudinal data analysis for discrete and continuous outcomes." <u>Biometrics</u> **42**: 121-130.

Appendix F

Table AF1
Demographic and Clinical Characteristics of VA and Medicare Patients Admitted to a Full Service Facility
FY 1997 AMI Cohorts (Male patients, age 65 and older)

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1576)	(n=49453)	(n=1517)	(n=1517)
Age 65-69 (%)	27.2	25.3	27.0	29.7
70-74 (%)	32.4	26.5	32.2	32.4
75-79 (%)	24.6	22.3	24.7	24.3
80-84 (%)	11.0	15.2	11.1	9.8
85 and older (%)	4.8	10.7	5.0	3.8
Race: White (%)	74.9	91.5	76.9	78.6
African American (%)	15.8	5.7	15.6	12.5
Hispanic (%)	5.2	0.7	3.5	3.6
Missing/other (%)	4.1	2.2	4.0	5.3
Distance to Admitting Hospital (miles)	36.3	16.3	34.2	29.5
Socioeconomic Variables[a]:				
% with college degree in zip code of residence	21.9	24.4	21.8	21.0
Median household income in zip code of residence	34955.6	38998.4	34793.3	33791.0
% professionals in zip code of residence	22.1	24.2	22.0	21.3
% African American in zip code of residence	16.8	10.0	16.6	13.4
% Hispanic in zip code of residence	7.2	5.8	6.9	6.7
% with public assistance in zip code of residence	9.7	7.8	9.7	9.2
% > 64 with public assistance in zip code of residence	11.1	9.3	11.0	11.0
Missing census data (%)	4.4	5.5	4.6	4.9
Clinical Variables[b]:				
Prior MI (%)	8.7	11.7	8.9	9.8
Chronic angina (%)	5.7	4.7	5.6	5.0
Unstable angina (%)	8.6	5.6	8.2	9.3
Arrhythmia (%)	10.5	7.8	10.4	9.8
Cardiac arrest (%)	1.7	1.4	1.6	0.9
Arthritis (%)	10.0	7.3	9.6	9.6
Cancer (%)	6.5	4.8	6.3	5.9
CHF (%)	15.4	10.3	14.7	13.1
Coagulation disorder (%)	2.2	2.3	2.0	2.1
Conduction abnormality (%)	3.0	2.4	2.8	3.1
Conduction disorder (%)	0.4	0.4	0.5	0.4
COPD (%)	28.9	23.8	28.9	31.5
Connective tissue disease (%)	0.3	0.5	0.3	0.6
CVA (%)	5.8	2.9	5.7	5.1
Dementia (%)	5.3	4.1	5.1	5.6
Diabetes (%)	30.0	20.6	29.0	28.8
Diabetes w/ end organ damage (%)	7.7	4.1	7.0	7.3
Alcohol/drug abuse (%)	3.9	2.2	3.6	3.6

Program Evaluation of Cardiac Care Programs in the VHA

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1576)	(n=49453)	(n=1517)	(n=1517)
Thyroid disease (%)	4.6	4.1	4.6	4.0
Fluid disorder (%)	4.6	3.9	4.5	5.3
GI bleeding (%)	2.4	0.9	1.9	2.0
Hypertension (%)	57.2	43.2	56.4	55.7
Hypertension w/ complications (%)	2.0	4.1	2.0	2.2
Liver disease (%)	0.9	0.4	0.7	0.6
Neurological disorder (%)	2.7	3.8	2.7	2.4
Paralysis (%)	0.4	0.2	0.4	0.5
Pneumonia (%)	3.8	2.8	3.8	4.2
Psychosis[c] (%)	2.5	1.4	2.4	2.4
Neurotic disorder (%)	1.9	0.8	1.9	1.7
Lung disease (%)	0.8	0.6	0.7	0.5
Renal failure (%)	5.0	2.9	4.4	3.8
Hypotension (%)	3.8	2.9	3.7	3.5
Syncope (%)	2.7	1.0	2.4	1.8
Ulcers (%)	2.3	0.8	2.2	2.5
UTI (%)	4.4	2.2	4.0	3.8
Endocarditis (%)	3.6	3.9	3.5	3.5
PVD (%)	11.7	9.4	11.7	10.6

[a] Obtained from 1990 Census by linking to the zip code of the patient's residence.
[b] Obtained from primary and secondary diagnoses from inpatient claims.
[c] Includes depression.

Table AF2
Demographic and Clinical Characteristics of VA and Medicare Patients Admitted to a Full Service Facility
FY 1998 AMI Cohorts (Male patients, age 65 and older)

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1592)	(n=51291)	(n=1556)	(n=1556)
Age 65-69 (%)	25.0	24.3	25.2	27.8
70-74 (%)	31.7	25.9	31.8	31.1
75-79 (%)	28.8	22.7	28.3	28.0
80-84 (%)	10.7	15.7	10.9	9.6
85 and older (%)	3.8	11.5	3.9	3.5
Race: White (%)	78.2	91.4	79.4	83.1
African American (%)	13.6	5.8	13.2	10.0
Hispanic (%)	4.5	1.4	4.4	3.7
Missing/other (%)	3.6	1.5	3.1	3.3
Distance to Admitting Hospital (miles)	35.8	16.7	35.5	31.2
Socioeconomic Variables[a]:				
% with college degree in zip code of residence	21.4	24.2	21.4	19.8
Median household income in zip code of residence	34421.9	38945.8	34497.1	32935.4
% professionals in zip code of residence	21.7	24.0	21.8	20.6
% African American in zip code of residence	15.3	9.8	15.1	12.4
% Hispanic in zip code of residence	7.1	5.9	7.1	6.3
% with public assistance in zip code of residence	9.5	7.7	9.4	9.2
% > 64 with public assistance in zip code of residence	11.0	9.2	10.9	11.1
Missing census data (%)	4.9	5.9	5.0	5.0
Clinical Variables[b]:				
Prior MI (%)	10.1	12.2	10.2	10.4
Chronic angina (%)	5.3	4.8	5.4	5.5
Unstable angina (%)	8.2	5.5	8.0	8.6
Arrhythmia (%)	9.9	8.4	9.9	8.8
Cardiac arrest (%)	1.3	1.5	1.3	0.8
Arthritis (%)	8.0	7.4	7.7	7.4
Cancer (%)	7.2	4.7	6.9	7.1
CHF (%)	14.7	11.0	14.4	12.7
Coagulation disorder (%)	1.9	2.8	1.9	1.4
Conduction abnormality (%)	2.0	2.5	2.1	1.7
Conduction disorder (%)	0.3	0.4	0.3	0.4
COPD (%)	27.6	23.8	27.4	26.8
Connective tissue disease (%)	0.4	0.5	0.4	0.3
CVA (%)	4.3	2.6	4.1	3.3
Dementia (%)	7.8	4.6	7.4	5.5
Diabetes (%)	33.2	21.8	32.9	32.0
Diabetes w/ end organ damage (%)	7.4	4.5	7.4	6.4
Alcohol/drug abuse (%)	3.8	2.3	3.6	4.1

Program Evaluation of Cardiac Care Programs in the VHA

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1592)	(n=51291)	(n=1556)	(n=1556)
Thyroid disease (%)	5.8	4.5	5.6	6.2
Fluid disorder (%)	3.9	4.0	3.9	4.0
GI bleeding (%)	2.1	1.1	1.9	1.7
Hypertension (%)	59.2	45.4	58.8	58.3
Hypertension w/ complications (%)	2.0	4.0	1.9	1.3
Liver disease (%)	0.8	0.4	0.7	0.5
Neurological disorder (%)	2.5	4.2	2.6	2.4
Paralysis (%)	0.5	0.2	0.4	0.3
Pneumonia (%)	5.0	3.3	4.9	5.3
Psychosis[c] (%)	2.8	1.4	2.6	2.3
Neurotic disorder (%)	1.0	0.9	1.0	0.9
Lung disease (%)	0.5	0.7	0.5	0.3
Renal failure (%)	5.4	3.2	5.3	4.5
Hypotension (%)	3.7	3.3	3.6	3.2
Syncope (%)	1.7	1.2	1.7	1.1
Ulcers (%)	1.1	0.9	1.2	1.0
UTI (%)	5.2	2.5	4.4	3.9
Endocarditis (%)	3.8	4.1	3.8	3.5
PVD (%)	12.1	10.1	12.2	13.0

[a] Obtained from 1990 Census by linking to the zip code of the patient's residence.
[b] Obtained from primary and secondary diagnoses from inpatient claims.
[c] Includes depression.

Table AF3
Demographic and Clinical Characteristics of VA and Medicare Patients Admitted to a Full Service Facility
FY 1999 AMI Cohorts (Male patients, age 65 and older)

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1632)	(n=53329)	(n=1588	(n=1588
Age 65-69 (%)	24.0	22.6	24.4	27.0
70-74 (%)	28.9	25.3	28.6	30.0
75-79 (%)	28.0	23.2	27.8	24.1
80-84 (%)	13.9	16.3	14.0	13.3
85 and older (%)	5.2	12.6	5.3	5.7
Race: White (%)	76.0	90.9	77.1	78.2
African American (%)	15.0	6.1	14.8	12.6
Hispanic (%)	4.2	1.3	4.0	3.5
Missing/other (%)	4.8	1.7	4.2	5.7
Distance to Admitting Hospital (miles)	34.2	16.7	33.6	29.9
Socioeconomic Variables[a]:				
% with college degree in zip code of residence	21.0	23.8	21.0	20.5
Median household income in zip code of residence	34202.0	38563.9	34207.0	32997.7
% professionals in zip code of residence	21.3	23.7	21.4	20.7
% African American in zip code of residence	15.8	9.7	15.8	13.7
% Hispanic in zip code of residence	7.7	5.6	7.4	7.5
% with public assistance in zip code of residence	9.5	7.7	9.5	9.2
% > 64 with public assistance in zip code of residence	10.8	9.1	10.8	10.9
Missing census data (%)	6.1	6.4	6.3	6.7
Clinical Variables[b]:				
Prior MI (%)	9.6	12.5	9.7	9.3
Chronic angina (%)	5.6	5.1	5.5	5.8
Unstable angina (%)	8.7	5.2	8.6	8.6
Arrhythmia (%)	11.6	8.5	11.7	11.5
Cardiac arrest (%)	1.8	1.4	1.7	1.2
Arthritis (%)	8.0	8.0	7.9	8.1
Cancer (%)	7.8	5.0	7.4	6.7
CHF (%)	17.9	11.1	16.9	16.2
Coagulation disorder (%)	1.7	3.0	1.6	2.1
Conduction abnormality (%)	2.8	2.3	2.6	2.9
Conduction disorder (%)	0.4	0.4	0.3	0.2
COPD (%)	30.7	24.8	30.2	29.9
Connective tissue disease (%)	0.5	0.6	0.4	0.5
CVA (%)	2.8	2.0	2.8	2.5
Dementia (%)	7.6	5.0	7.3	6.7
Diabetes (%)	34.9	23.1	34.1	32.9
Diabetes w/ end organ damage (%)	8.3	4.8	7.9	8.1
Alcohol/drug abuse (%)	4.1	2.5	3.8	3.7

Program Evaluation of Cardiac Care Programs in the VHA

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=1632)	(n=53329)	(n=1588	(n=1588
Thyroid disease (%)	6.3	4.9	6.3	6.2
Fluid disorder (%)	4.2	3.8	4.2	3.5
GI bleeding (%)	2.6	1.0	2.3	2.3
Hypertension (%)	62.6	47.2	61.9	61.7
Hypertension w/ complications (%)	3.6	3.9	3.4	3.6
Liver disease (%)	0.3	0.4	0.3	0.4
Neurological disorder (%)	2.6	4.5	2.6	2.1
Paralysis (%)	0.5	0.2	0.4	0.3
Pneumonia (%)	6.0	3.5	5.7	5.7
Psychosis[c] (%)	3.5	1.5	3.1	3.2
Neurotic disorder (%)	1.9	1.0	1.8	1.3
Lung disease (%)	1.1	0.8	1.1	1.1
Renal failure (%)	5.5	3.2	4.9	4.3
Hypotension (%)	4.0	3.3	4.0	3.9
Syncope (%)	2.7	1.2	2.1	1.6
Ulcers (%)	1.7	0.8	1.5	1.5
UTI (%)	4.5	2.5	4.2	4.0
Endocarditis (%)	3.2	4.0	3.1	3.2
PVD (%)	12.7	10.3	12.5	11.3

[a] Obtained from 1990 Census by linking to the zip code of the patient's residence.
[b] Obtained from primary and secondary diagnoses from inpatient claims.
[c] Includes depression.