Appendix C

Table AC1
Unadjusted Mortality for VA Patients with an AMI, all cohort years

	Cohort			
	FY 1994 (n=8677)	FY 1997 (n=8135)	FY 1998 (n=8353)	FY 1999 (n=8664)
30 Day Mortality (%)	11.8	12.7	11.2	11.3
1 Year Mortality (%)	24.1	24.3	23.5	25.4
2 Year Mortality (%)	31.0	31.3	30.8	NA
3 Year Mortality (%)	36.4	36.6	NA	NA
6 Year Mortality (%)	50.1	NA	NA	NA

Table AC2
Unadjusted Mortality for VA Patients with an AMI According to Demographic Subgroups, all cohort years

	Age		Gender		Race		
	< 65 (n=14815)	65 and older (n=19014)	Males (n=33333)	Females (n=496)	White (n=26875)	Black (n=4176)	Hispanic (n=1557)
30 Day Mortality (%)	5.9	16.3	11.7	12.7	12.0	11.0	11.2
1 Year Mortality (%)	11.9	33.7	24.1	22.2	24.5	23.5	21.5
2 Year Mortality (%)	16.1	43.0	31.1	27.3	31.5	30.8	28.7
3 Year Mortality (%)	20.5	49.5	36.5	32.9	36.6	37.0	35.2
6 Year Mortality (%)	27.2	60.6	45.7	41.4	45.8	46.9	43.9

Table AC3
Mortality in Matched Cohorts: Males age 65 and older, 1997-1999
Excluding NDI Deaths

	FY 1997			FY 1998			FY 1999		
	VA (n=3992)	MED (n=3992)	p-value	VA (n=4277)	MED (n=4277)	p-value	VA (n=4502)	MED (n=4502)	p-value
30 day mortality	**18.4**	**14.9**	**<.001**	**16.3**	**14.6**	**.039**	15.5	14.1	0.062
1 year mortality	**34.7**	**28.2**	**<.001**	**33.5**	**28.9**	**<.001**	**35.0**	**29.3**	**0.002**
2 year mortality	**43.8**	**34.6**	**<.001**	**42.9**	**35.9**	**<.001**	NA	NA	
3 year mortality	**50.3**	**40.3**	**<.001**	NA	NA		NA	NA	

Bolded numbers represent significant differences at 10% level

Table AC4
Regression-Adjusted[a] Mortality in Matched Cohorts: Males age 65 and older, 1997-1999
Excluding NDI Deaths

	FY 1997			FY 1998			FY 1999		
	VA (n=3992)	MED (n=3992)	p-value	VA (n=4277)	MED (n=4277)	p-value	VA (n=4502)	MED (n=4502)	p-value
30 day mortality	**18.3**	**15.0**	**0.003**	15.4	15.5	0.87	**15.5**	**14.1**	**0.066**
1 year mortality	**34.5**	**28.3**	**<.001**	**32.7**	**29.7**	**0.01**	**35.2**	**29.1**	**0.001**
2 year mortality	**43.9**	**34.6**	**<.001**	**41.9**	**36.8**	**<.001**	NA	NA	
3 year mortality	**50.1**	**40.5**	**<.001**	NA	NA		NA	NA	

[a] Adjusted for age, race, median household income in zip code of residence, % of residents in zip code that are African American, % of residents in zip code that are Hispanic, distance to admitting hospital and a set of 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 A5-A7).

Bolded numbers represent significant differences at 10% level

Table AC5
Demographic and Clinical Characteristics of the VA and Medicare
FY 1999 AMI Cohorts (Male patients, age 65 and older)
Impact of adjusting for disease severity on basis of comorbidities obtained from inpatient
stays only versus those from inpatient and prior year outpatient data

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=4588)	(n=114933)	(n=4502)	(n=4502)
Age 65-69 (%)	24.6	20.6	24.8	26.4
70-74 (%)	27.8	24.1	27.5	27.5
75-79 (%)	27.6	23.0	27.4	26.3
80-84 (%)	14.5	17.5	14.6	14.3
85 and older (%)	5.6	14.9	5.7	5.5
Race: White (%)	79.3	91.7	80.6	82.1
African American (%)	11.5	5.5	11.5	9.3
Hispanic (%)	5.3	1.2	4.1	3.9
Missing/other (%)	3.9	1.7	3.8	4.7
Distance to Admitting Hospital (miles)	28.8	14.4	28.7	27.4
Socioeconomic Variables[a]:				
% with college degree in zip code of residence	19.3	22.5	19.6	18.9
Median household income in zip code of residence	32383.7	37903.4	32799.0	31950.6
% professionals in zip code of residence	20.1	22.7	20.3	19.8
% African American in zip code of residence	12.4	8.6	12.4	10.5
% Hispanic in zip code of residence	5.3	5.0	5.4	5.3
% with public assistance in zip code of residence	9.1	7.8	9.2	8.8
% > 64 with public assistance in zip code of residence	10.3	9.1	10.4	10.5
Missing census data (%)	8.6	6.1	7.5	7.8
Clinical Variables[b]:				
Prior MI (%)	19.6	20.4	19.6	20.6
Chronic angina (%)	37.8	33.5	37.6	37.9
Unstable angina (%)	19.8	21.3	20.0	20.1
Arrhythmia (%)	25.8	35.4	26.1	26.3
Cardiac arrest (%)	3.3	8.7	3.3	3.5
Arthritis (%)	31.2	27.9	31.2	30.7
Cancer (%)	22.1	22.0	22.1	22.7
CHF (%)	37.0	46.3	37.6	36.5
Coagulation disorder (%)	1.7	2.8	1.7	1.7
Conduction abnormality (%)	5.1	9.1	5.1	5.1
Conduction disorder (%)	1.4	2.8	1.4	1.4
COPD (%)	43.8	37.8	44.0	43.9
Connective tissue disease (%)	1.0	1.7	1.0	1.0
CVA (%)	15.3	15.8	15.2	14.7

Program Evaluation of Cardiac Care Programs in the VHA

	Prior to Matching		Matched Sample	
	VA	Medicare	VA	Medicare
	(n=4588)	(n=114933)	(n=4502)	(n=4502)
Dementia (%)	**10.3**	**8.5**	10.1	9.6
Diabetes (%)	**42.8**	**33.9**	42.4	41.3
Diabetes w/ end organ damage (%)	**20.4**	**11.9**	19.9	18.8
Alcohol/drug abuse (%)	**6.1**	**3.0**	5.9	6.0
Thyroid disease (%)	**9.1**	**11.6**	9.3	9.4
Fluid disorder (%)	**8.0**	**10.5**	8.1	7.4
GI bleeding (%)	**6.2**	**7.1**	6.2	6.7
Hypertension (%)	**80.4**	**68.3**	80.0	78.7
Hypertension w/ complications (%)	**7.2**	**11.3**	7.2	7.0
Liver disease (%)	0.9	0.9	0.9	1.0
Neurological disorder (%)	**4.5**	**8.0**	4.6	4.7
Paralysis (%)	1.3	1.1	1.3	1.1
Pneumonia (%)	**12.2**	**14.3**	12.2	12.3
Psychosis[c] (%)	**9.7**	**5.6**	9.2	8.3
Neurotic disorder (%)	**2.4**	**1.3**	2.4	2.1
Lung disease (%)	**1.7**	**1.9**	1.7	1.9
Renal failure (%)	**11.7**	**9.4**	11.5	10.8
Hypotension (%)	**9.0**	**10.2**	9.1	8.3
Syncope (%)	**6.6**	**10.6**	6.7	6.7
Ulcers (%)	**5.5**	**3.8**	5.5	6.1
UTI (%)	**11.1**	**12.5**	11.1	10.6
Endocarditis (%)	**10.1**	**20.8**	10.2	10.6
PVD (%)	**10.1**	**20.8**	25.9	25.7

[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.

Bolded numbers represent significant differences at 10% level

Table AC6
Impact of adjusting for disease severity on basis of comorbidities obtained from inpatient stays only versus those from inpatient and prior year outpatient data
1999 VA and Medicare cohorts

	Full Adjustment (inpatient and outpatient diagnoses)			Partial Adjustment (inpatient diagnoses only)		
	VA (n=4496)	MED (n=4496)	p-value	VA (n=4502)	MED (n=4502)	p-value
Cath within 30 Days (%)	**40.1**	**65.1**	**<.0001**	**40.0**	**63.1**	**<.0001**
CABG within 30 Days (%)	**7.7**	**19.1**	**<.0001**	**7.6**	**17.7**	**<.0001**
PCI within 30 Days (%)	**14.6**	**31.3**	**<.0001**	**14.5**	**30.3**	**<.0001**
% PCI with stent	**82.8**	**85.6**	**0.096**	82.9	85.2	0.18
Revasc within 30 Days (%)	**22.1**	**48.9**	**<.0001**	**22.0**	**46.8**	**<.0001**
LOS (Days)	**11.2**	**9.0**	**<.0001**	**11.1**	**8.8**	**<.0001**
30 day mortality (%)	**15.5**	**13.5**	**0.006**	**15.5**	**14.1**	**0.062**
1 year mortality (%)	**35.0**	**28.7**	**0.0008**	**35.0**	**29.3**	**0.002**
30 Day Readmit: CHF	2.2	2.4	0.44	2.2	2.3	0.78
30 Day Readmit: IHD	**5.3**	**4.1**	**0.005**	**5.3**	**3.8**	**0.0007**
6 Month Readmit: CHF	8.3	8.1	0.79	8.2	7.9	0.62
6 Month Readmit: AMI	**8.6**	**6.2**	**0.001**	**8.5**	**6.3**	**<.0001**
6 Month Readmit: IHD	**14.2**	**10.4**	**<.0001**	**14.2**	**9.7**	**<.0001**
6 Month Readmit: All Causes	**26.1**	**21.8**	**0.0003**	**26.1**	**20.5**	**<.0001**

Bolded numbers represent significant differences at 10% level

Table AC7
30-Day Mortality in Matched Cohorts by Age: Males age 65 and older, 1997-1999

	FY 1997			FY 1998			FY 1999		
	VA (n=3992)	MED (n=3992)	p-value	VA (n=4277)	MED (n=4277)	p-value	VA (n=4502)	MED (n=4502)	p-value
65-69	11.9	9.8	0.12	10.5	9.3	0.35	9.9	9.1	0.52
70-74	**16.5**	**12.7**	**0.005**	**15.0**	**12.7**	**0.085**	**12.3**	**9.5**	**0.027**
75-79	**21.6**	**17.1**	**0.010**	**18.5**	**15.2**	**0.040**	**18.8**	**16.1**	**0.080**
80-84	28.1	23.3	0.11	24.3	25.0	0.82	20.2	22.2	0.39
85 and older	29.5	30.9	0.78	**24.9**	**33.7**	**0.070**	27.7	29.0	0.75

Bolded numbers represent significant differences at 10% level. This table and AC8 were created using the matched pairs *without* further adjustment from a regression analysis.

Table AC8
1-Year Mortality in Matched Cohorts by Age: Males age 65 and older, 1997-1999

	FY 1997			FY 1998			FY 1999		
	VA (n=3992)	MED (n=3992)	p-value	VA (n=4277)	MED (n=4277)	p-value	VA (n=1256)	MED (n=1233)	p-value
65-69	**24.9**	**18.1**	**0.001**	**23.1**	**19.5**	**0.038**	24.5	20.5	0.22
70-74	**32.1**	**24.3**	**0.001**	**32.6**	**25.9**	**0.001**	29.8	25.5	0.21
75-79	**39.2**	**33.0**	**0.004**	**37.0**	**31.0**	**0.003**	**39.1**	**31.0**	**0.029**
80-84	**50.1**	**43.0**	**0.038**	45.7	44.2	0.64	45.5	40.6	0.36
85 and older	51.5	58.2	0.21	51.4	59.8	0.12	58.0	53.6	0.59

Bolded numbers represent significant differences at 10% level

Table AC9
Revascularization within 30 Days in Matched Cohorts by Age: Males age 65 and older, 1997-1999

	FY 1997			FY 1998			FY 1999		
	VA (n=3992)	MED (n=3992)	p-value	VA (n=4277)	MED (n=4277)	p-value	VA (n=4502)	MED (n=4502)	p-value
65-69	**32.9**	**61.5**	**<.001**	**33.0**	**61.0**	**<.001**	**32.8**	**61.6**	**<.001**
70-74	**33.6**	**58.5**	**<.001**	**29.4**	**61.7**	**<.001**	**32.1**	**62.2**	**<.001**
75-79	**33.6**	**58.0**	**<.001**	**31.4**	**59.1**	**<.001**	**32.6**	**59.7**	**<.001**
80-84	**21.2**	**56.7**	**<.001**	**29.8**	**55.4**	**<.001**	**29.9**	**55.5**	**<.001**
85 and older	41.7	51.9	0.333	**21.4**	**53.8**	**<.001**	**16.3**	**53.2**	**<.001**

Bolded numbers represent significant differences at 10% level

Table AC10
Percentage Point Differences in Mortality Between VA and Medicare Patients in Matched Cohorts
(Males age 65 and older), 1997-1999

		FY 1997	FY 1998	FY 1999
30 day mortality (% point difference between VA and Medicare)	Cumulative	3.3	-0.1	1.4
1 year mortality (% point difference between VA and Medicare)	*Since previous interval*	*3.0*	*3.1*	*4.8*
	Cumulative	6.3	3.0	6.2
2 year mortality (% point difference between VA and Medicare)	*Since previous interval*	*3.0*	*2.2*	
	Cumulative	9.3	5.2	
3 year mortality (% point difference between VA and Medicare)	*Since previous interval*	*0.4*		
	Cumulative	9.7		

Table AC11
Unadjusted Mortality Data in 7 State Sample Compared to National Population
Medicare Males Age 65 and older, 1997-1999

	FY 1997		FY 1998		FY 1999	
	7 state[a]	National	7 state[a]	National	7 state[a]	National
N	51865	137095	50245	135137	49239	133630
30 Day Mortality (%)	16.6	16.8	17.2	16.8	17.3	17.0
1 Year Mortality (%)	30.7	30.2	32.3	31.3	31.7	30.7
2 Year Mortality (%)	38.4	37.7	39.7	38.3	NA	NA
3 Year Mortality (%)	44.0	43.3	NA	NA	NA	NA

[a] California, Florida, Massachusetts, New York. Ohio, Pennsylvania, and Texas

Table AC12
Differences in Unadjusted Mortality in VA Patient with AMI by Data Source

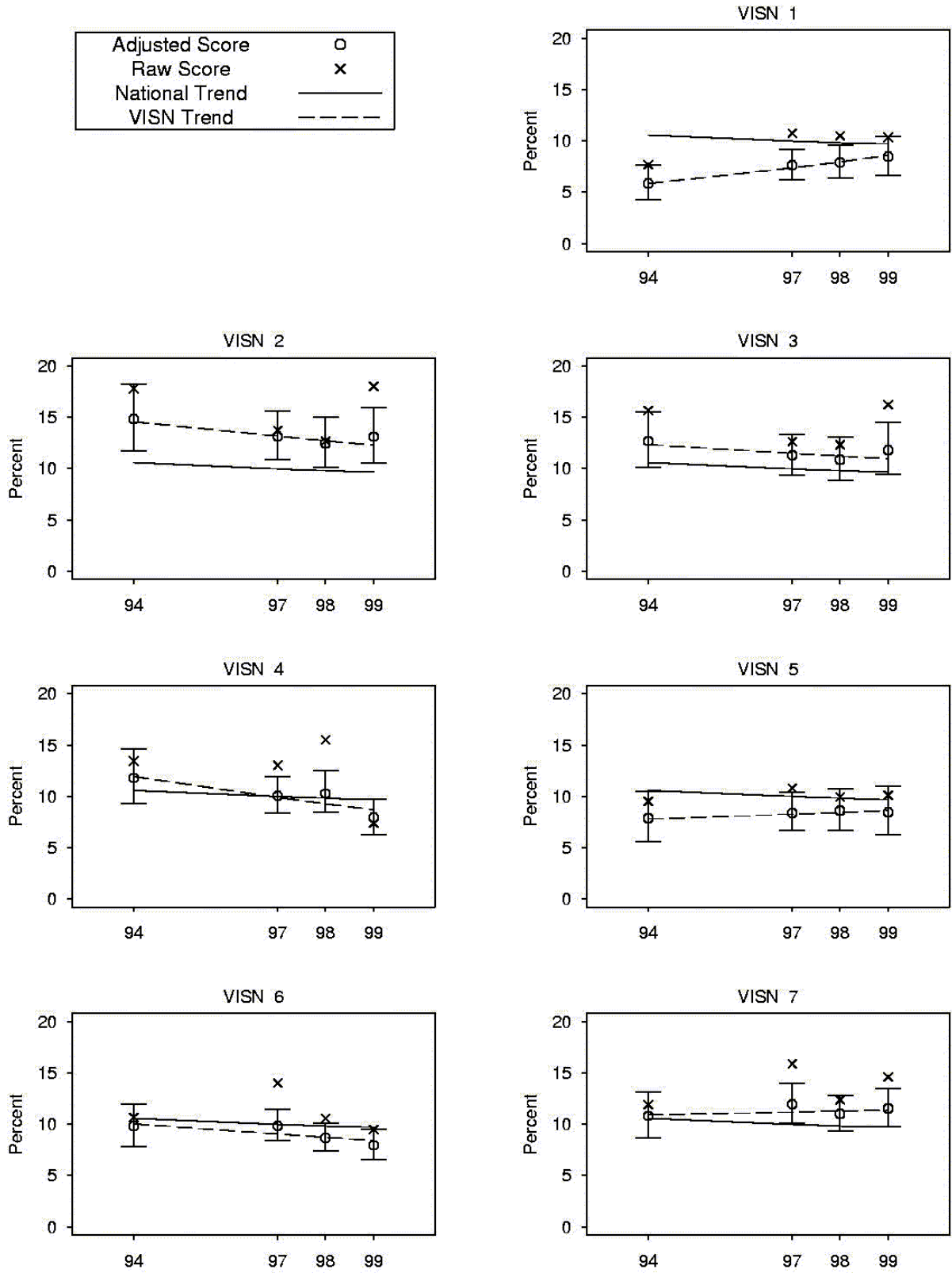|	1994		1997		1998		1999	
	All Sources[a]	VA sources only[b]	All Sources[a]	VA sources only[b]	All Sources[a]	VA sources only[b]	All Sources[a]	VA sources only[b]
30 Day Mortality (%)	11.8	11.5	12.7	12.5	11.2	11.1	11.3	11.2
1 Year Mortality (%)	24.1	23.1	24.3	23.5	23.5	22.7	25.4	24
2 Year Mortality (%)	31.1	29.7	31.3	29.9	30.8	29.4	N/A	N/A
3 Year Mortality (%)	36.4	34.8	36.6	34.7	N/A	N/A	N/A	N/A
4 Year Mortality (%)	41.5	39.6	N/A	N/A	N/A	N/A	N/A	N/A
5 Year Mortality (%)	45.9	43.7	N/A	N/A	N/A	N/A	N/A	N/A
6 Year Mortality (%)	50.1	47.6	N/A	N/A	N/A	N/A	N/A	N/A

[a] BIRLS, PTF, NDI and Medicare enrollment files
[b] BIRLS and PTF only

Program Evaluation of Cardiac Care Programs in the VHA

Figure AC1

Adjusted 30 Day Mortality Rates

Legend:
- Adjusted Score ○
- Raw Score ×
- National Trend ———
- VISN Trend — — —

Plots: VISN 1, VISN 2, VISN 3, VISN 4, VISN 5, VISN 6, VISN 7

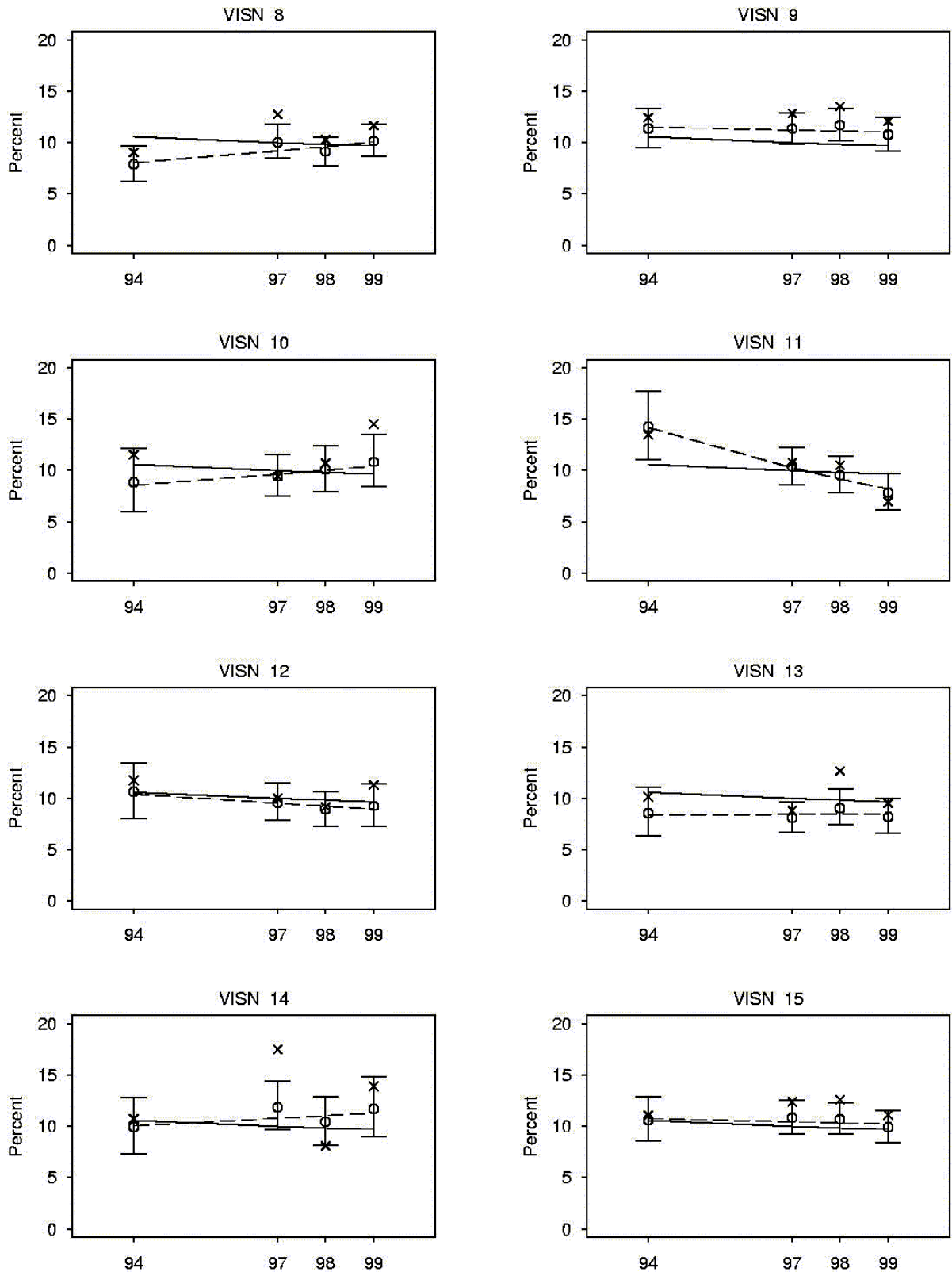**Program Evaluation of Cardiac Care Programs in the VHA**

Figure AC1

Adjusted 30 Day Mortality Rates

Program Evaluation of Cardiac Care Programs in the VHA
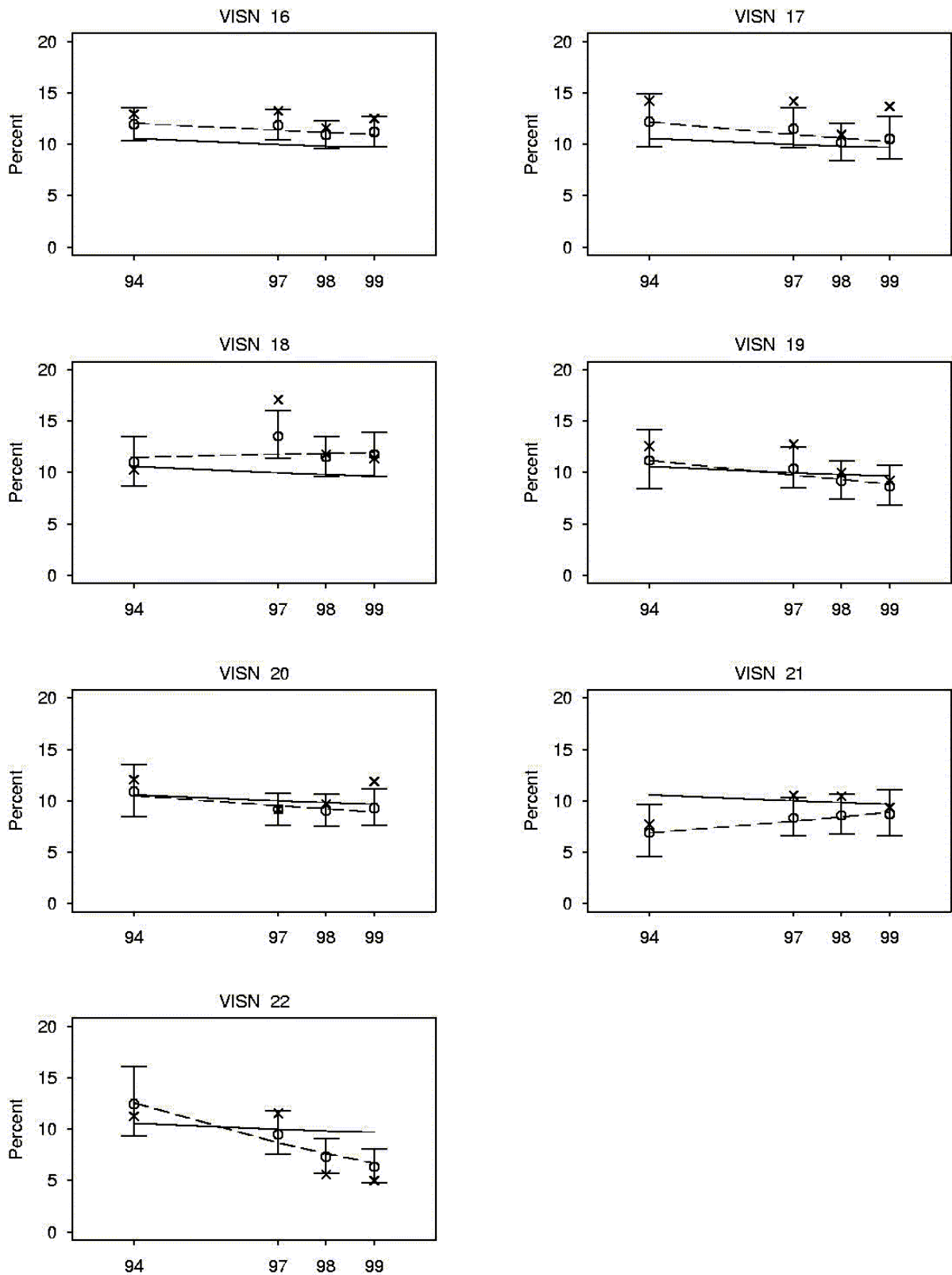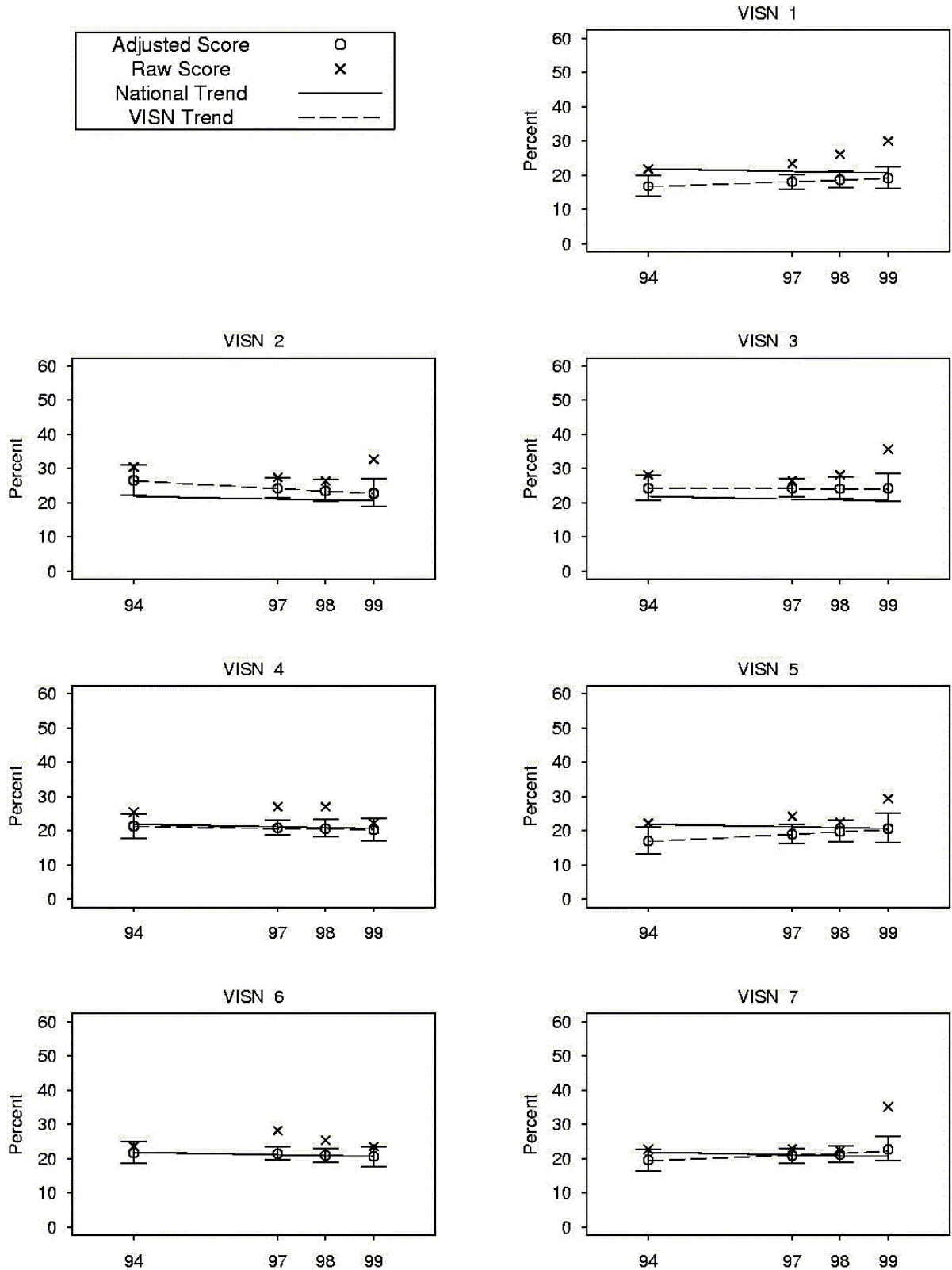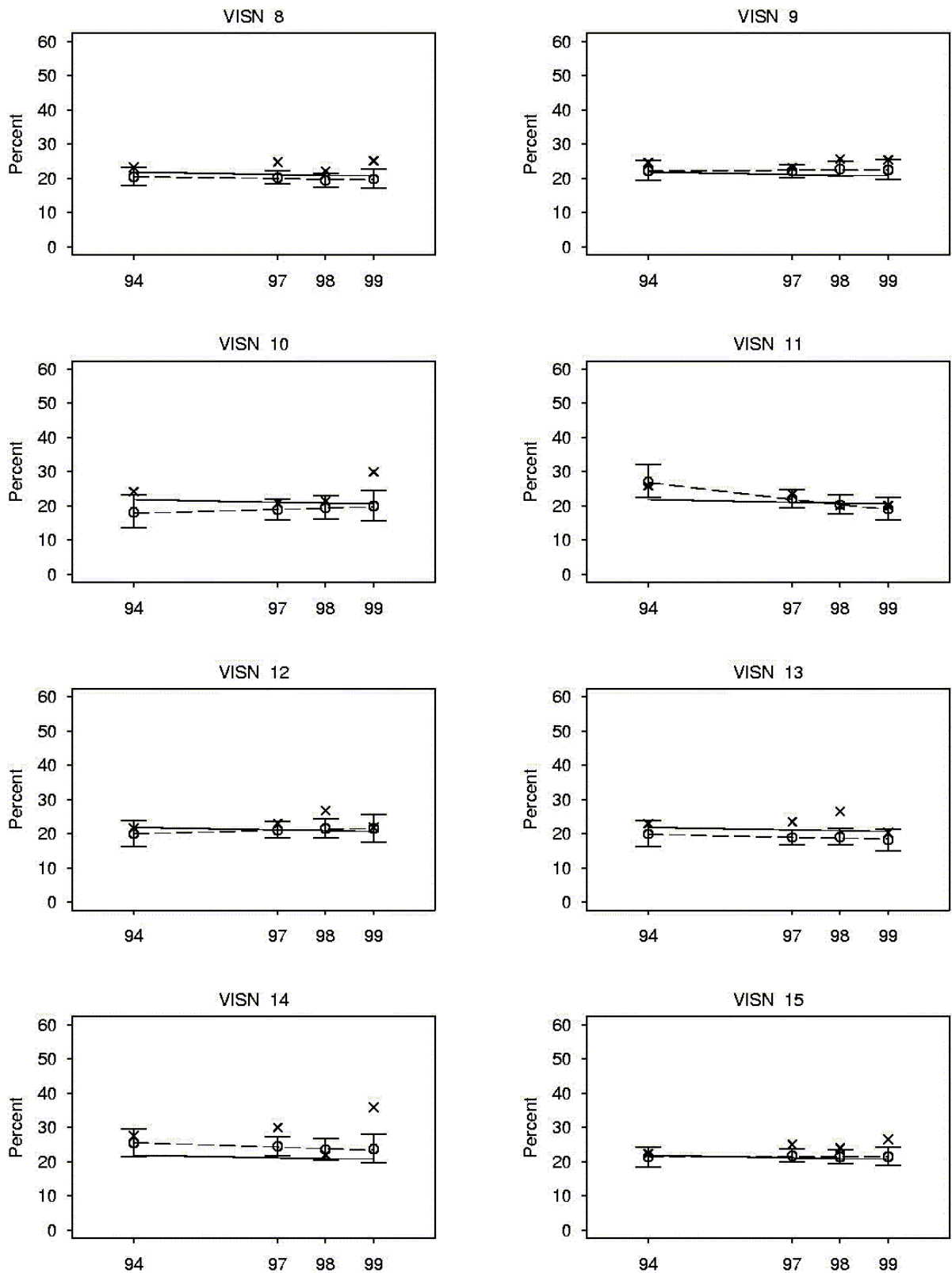
Figure AC1

Adjusted 30 Day Mortality Rates

Program Evaluation of Cardiac Care Programs in the VHA

Figure AC2

Adjusted 365 Day Mortality Rates

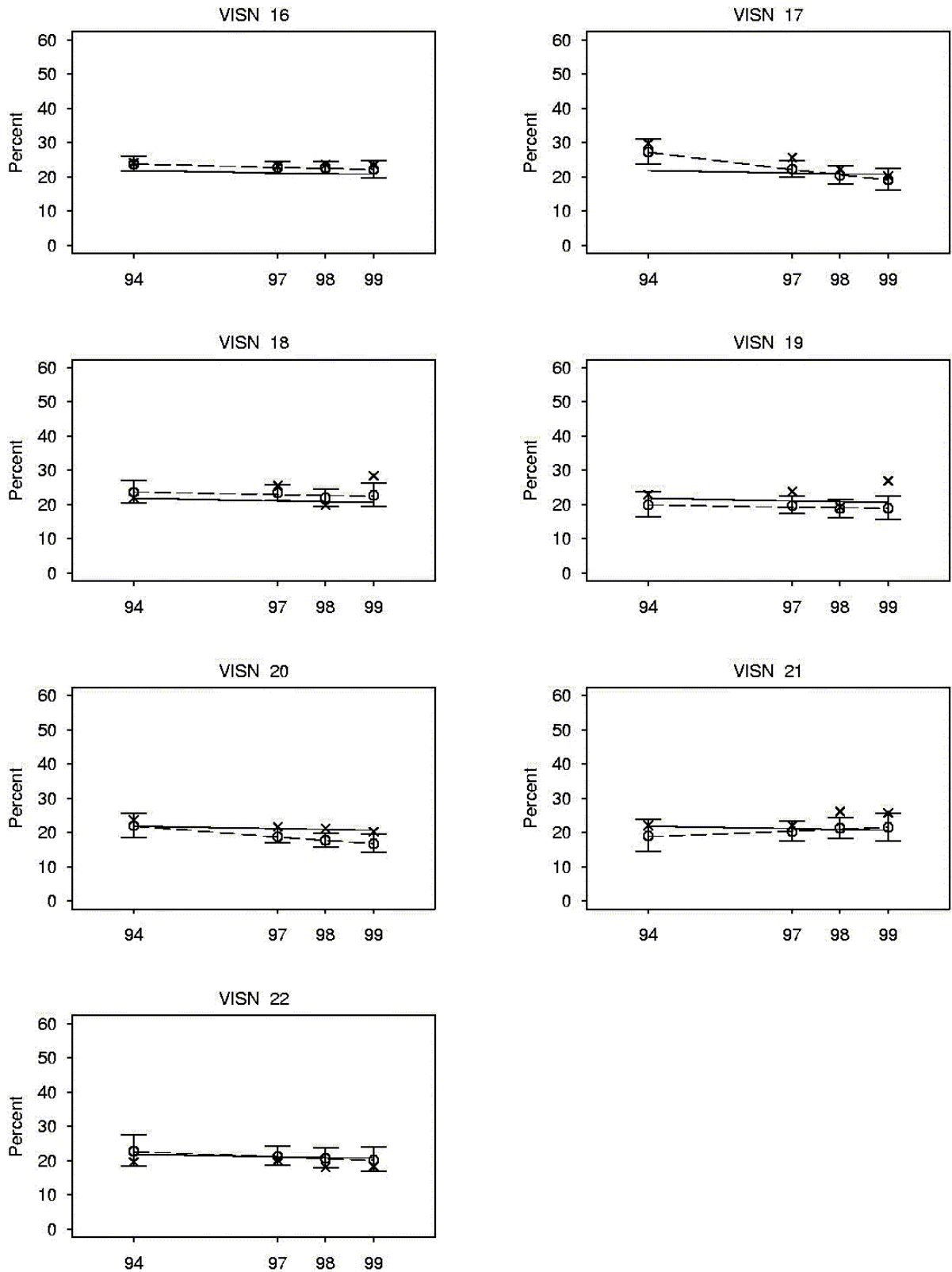# Program Evaluation of Cardiac Care Programs in the VHA

Figure AC2

Adjusted 365 Day Mortality Rates

Program Evaluation of Cardiac Care Programs in the VHA

Figure AC2

Adjusted 365 Day Mortality Rates