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ATTITUDES ABOUT RACISM, MEDICAL MISTRUST, AND SATISFACTION WITH CARE AMONG AFRICAN AMERICAN AND WHITE CARDIAC PATIENTS

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There is a voluminous literature demonstrating racial differences in the treatment of cardiovascular disease. Differences have been detected in studies that have accounted for racial differentials in severity of disease, health insurance status, and access and availability of care. These studies have found that white cardiac patients are about twice as likely as African American patients to receive invasive diagnostic procedures such as coronary angiography and about 3 times more likely to receive revascularization when indicated (Ayanian et al. 1993; Ford et al. 1989; Franks et al. 1993; Gatsonis et al. 1995; Giles et al. 1995; Goldberg et al. 1992; Hannan, Kilburn, and O'Donnell 1991; Johnson et al. 1993; Maynard et al. 1986; McBean, Warren, and Babish 1994; Mirvis et al. 1994; Wenneker and Epstein 1989; and Whittle et al. 1993). Although reasons for these differences have not been definitively determined, mounting evidence suggests that racial differences are a reflection of racial bias in medical care practice and not determined by patients' behavior (LaVeist et al. under review; Schulman et al. 1999; King and Brunetta 1999). Several studies have speculated that patients' attitudes toward health care institutions play an important role in patients' willingness to submit to invasive procedures and use medical services (Prislin et al. 1998; Zastowny et al. 1989; Harris et al. 1995). It is possible that patients are transmitting these attitudes in subtle or direct ways to physicians and may be influencing physicians' decision making. Mistrust of the health care system among African Americans has been previously documented (Nickerson et al. 1994; Corbie-Smith et al. 1999; Gamble 1997). And several studies have demonstrated racial differences in patient satisfaction with care (Harris et al. 1995; Weiss 1988; Cooper-Patrick et al. 1999).

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New Contribution

Because most previous studies of racial differences among cardiac patients have relied on administrative data, the limitations of these data have made it difficult to progress beyond simple descriptions of racial differences. Thus, previous studies have not assessed the patient characteristics, such as attitudes, that may contribute to disparities. In addition, although medical mistrust has been examined in qualitative studies (Corbie-Smith et al. 1999) and speculative essays (Baker 1999; Gamble 1977), it has not previously been quantified and the distribution of racial differences has not previously been published.

Previous research has established a link between patient satisfaction and patient compliance and utilization of health services. Determinants of patient satisfaction have also been examined. However, there has been little attention to attitudinal or situational factors (Weiss 1988). Specifically, patients' perception of racism within the medical care setting and medical mistrust have not previously been assessed as determinants of patient satisfaction. Finally, although previous research has demonstrated and described racial differences in patient satisfaction, studies have not attempted to explain these differences.

Conceptual Framework

The conceptual framework for this research builds on findings that patient race is a determinant of patient satisfaction. Auslander and colleagues (1997) studied mothers' perceived racism as a predictor of satisfaction with medical care received by their child. In addition, we build on previous findings of racial differences in patient satisfaction (Saha et al. 1999). Both of these studies modeled patient satisfaction as a function of other attitudes that have been influenced by previous experiences in the health care setting—specifically, perceived racism and medical mistrust. To do this, we developed a conceptual model that specifies patient satisfaction as a function of individual predisposing characteristics (patient's gender, educational attainment, and age) and experiential factors (frequency of medical care encounters and other attitudes related to the health care system). Finally, health insurance is viewed as an enabling factor.

Methods

The present study was conducted among patients who have substantial contact with the health care system because of their chronic heart condition. Therefore, all

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study participants have had multiple and recent exposures to the health care settings. Thus, they have had numerous opportunities to have their attitudes influenced by those experiences. Furthermore, the respondents come from three hospitals within the same city, with significantly overlapping catchment areas and admitting staffs. While this does not standardize their exposures, it does reduce the variability among the health care environments to which they have been exposed. In addition, analysis testing the effect of the hospital to which the patient was admitted found it not to be a significant predictor of satisfaction.

Data for this study came from the Cardiac Access Longitudinal (CAL) Study, an ongoing study of medical care access, utilization, and quality of life among white and African American cardiac patients of three hospitals in Maryland. The medical record of every patient discharged from the hospitals in 1995 and 1997 with a cardiac-related diagnosis was abstracted to determine if the patient was an appropriate candidate for receipt of coronary angiography (an invasive procedure used to aid in the diagnosis of cardiac disease). Previous studies have demonstrated that African American patients who are appropriate candidates for the procedure are substantially less likely to receive it compared with white patients with similar presentation of symptoms (Schulman et al. 1999; Whittle et al. 1993; Mirvis et al. 1994; Franks et al. 1993; Gatsonis et al. 1995). The specific diagnostically related groups (DRGs) used to select patients for the study are listed in the appendix. Records from 9,307 hospital discharges were abstracted, representing 7,929 patients (after adjustment for multiple admissions). If a patient had more than one hospitalization, we used the last cardiac-related hospitalization of the year as the focal hospitalization.

Trained reviewers (supervised by the chiefs of cardiology at each of the hospitals) reviewed each patient record and classified each patient as class 1, class 2, or class 3 for receipt of coronary angiography (CA) according to the criteria established by the American College of Cardiology (ACC) and the American Heart Association (AHA). According to the ACC/AHA guidelines, class 1 patients (2,309, 29 percent) are patients for which there is general agreement that CA is indicated. Class 2 patients (344, 4 percent) are patients for which CA is frequently performed but for which there was a divergence of opinion on the ACC/AHA panel that established the guidelines. Cardiac angiography is not indicated for class 3 patients (5,276, 67 percent).

All class 1 and 2 patients were followed up by telephone to complete a 30-minute interview between 6 and 12 months after discharge. Fifteen percent of patients were deceased at follow-up, 1.1 percent could not be located, and

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9.1 percent declined to be enrolled in the study. After adjusting for missing data and nonblack or nonwhite patients, the effective sample size was 1,784. Distributions and descriptions for the variables included in the analysis are presented in Table 25.1.

Patient race, gender, and age were collected from hospital records and verified by respondent self-report during the telephone interview. The survey protocol called for removing patients who reported their race as other than African American or white from the study. However, patients were not removed for discrepancies in gender or age. Race and gender were specified as binary variables where white was coded as 0 and black was coded as 1, and female was coded as 0 and male was coded as 1. Age was specified as a set of binary variables indicating younger than 50, age 50 to 64, age 65 to 79, and 80 and older. Age was also derived from hospital records and verified during the telephone interview.

Table 25.1. Description of Independent and Control Variables

Variable	Description
Race	Binary variable, 0 = white (n = 1,003), 1 = black (n = 781)
Sex	Binary variable, 0 = female (n = 932), 1 = male (n = 852)
Age	Set of binary variables, less than 50 (n = 235), 50 to 64 (n = 561), 65 to 79 (n = 749), 80 and older (n = 229)
Insurance	Set of binary variables, Medicaid (n = 177), Medicare only (n = 267), private (n = 1,250), uninsured (n = 90)
Education	Categorical variable, 1 = less than high school graduate (n = 825), 2 = high school graduate (n = 573), 3 = more than high school graduate (n = 386)
Hospital nights	Number of nights in hospital in past 12 months, 1 = 1 night (n = 1,030), 2 = 2 to 7 nights (n = 393), 3 = 8 to 30 nights (n = 244), 4 = more than 30 nights (n = 117)
Patient's perception of racism in health care system	Average of four items on a 4-point scale, M = 2.13, SD = .40, alpha reliability coefficient = .76, range = 1 to 4
Patient's mistrust of health care system	Average of five items on 4-point scale, M = 2.29, SD = .39, alpha reliability coefficient = .74, range = 1 to 4
Patient's satisfaction with care	Average of five items on 4-point scale, M = 3.59, SD = .59, alpha reliability coefficient = .93, range = 1 to 4

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Health insurance status came from hospital data. Patients were coded based on primary payer: Medicaid, Medicare, private insurance, or uninsured. Patients who had both Medicare and Medicaid were coded as Medicaid, and patients who had Medicare and private insurance (Medigap) were coded as Medicare. Private payer relates to patients who had only private insurance. Educational attainment came from the patient interview and was recorded as the highest level of formal education completed as of the date of the interview. We recoded education into three categories: (1) less than high school graduate, (2) high school graduate, and (3) more than high school.

Number of nights spent in the hospital within the past 12 months is an ordinal variable coded as 1 night, 2 to 7 nights, 1 week to 1 month, and more than 1 month.

Finally, patients' perception of racism, medical mistrust, and satisfaction with care are all indices created from multi-item batteries. Each index represents the average score across several items. The individual items are outlined in the Results section.

In the first set of analyses, we compare attitudes of black and white patients on their perceptions of racism within health care settings, mistrust of the health care system, and their satisfaction with the care they receive. We then conduct bivariate and multivariate analyses to assess the effect of patient race, perceived racism, and medical mistrust on patient satisfaction. In the final set of analyses, we conduct bivariate logistic regression to assess the effect on patients' attitudes of receiving coronary angiography.

Results

Table 25.2 reports respondents' attitudes regarding the existence of racism within health care settings. Respondents were read four statements regarding racism and asked to indicate their agreement with the statements using a 4-point scale (*strongly disagree, disagree, agree, strongly agree*). Table 25.2 displays race comparisons of the percentage of respondents who indicated *strongly agree* or *agree*.

Table 25.2 shows a consistent racial disparity in reports of racism. While about two thirds of African American patients agreed or strongly agreed that "doctors treat African American and white people the same," nearly 87 percent of white patients felt that way. Thirty percent of African American patients endorsed the statement, "Racial discrimination in a doctor's office is common," while only

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Table 25.2. Race Differences in Items in the Racism Index, Percentage Reporting Agree and Strongly Agree

Variable	Black	White	Black-White Ratio
Doctors treat African American and white people the same	67.5	86.8	.78*
Racial discrimination in a doctor's office is common[a]	30.0	7.3	4.11*
In most hospitals, African Americans and whites receive the same kind of care	78.6	92.9	.85*
African Americans can receive the care they want as equally as white people can	61.2	88.1	.68*

[a]*Responses were reversed before inclusion in the index to be consistent with the coding of the other variables in the index.*
*$p < .001$.

7.3 percent of white patients endorsed that statement. Black patients were about 85 percent as likely as white patients to agree or strongly agree that African Americans and whites receive the same kind of care in hospitals. And while 88.1 percent of white patients agreed or strongly agreed that "African Americans can receive the care they want as equally as white people can," only 61.2 percent of black patients felt that way.

Table 25.3 examines patients' attitudes of mistrust of the health care system. Patients were asked to react to five statements regarding mistrust of the health care system on a 4-point scale (*strongly disagree, disagree, agree,* or *strongly agree*). The table reports responses of agree and strongly agree combined. When read the statement "Patients have sometimes been deceived or misled at hospitals," 51.4 percent of black patients agreed or strongly agreed compared with 42.4 percent of white patients. Nearly 40 percent of African American patients compared with about a quarter of white patients felt that hospitals often wanted to know more about patients' personal affairs than they really needed to know. And African American patients were nearly twice as likely as white patients to agree or strongly agree that "hospitals have sometimes done harmful experiments on patients without their knowledge."

African American patients were 91 percent more likely than white patients to perceive social class differences in the treatment that patients received at hospitals.

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Table 25.3. Race Differences in the Items in the Medical Mistrust Index, Percentage Reporting Agree and Strongly Agree

Variable	Black	White	Black-White Ratio
Patients have sometimes been deceived or misled at hospitals	51.4	42.4	1.21*
Hospitals often want to know more about your personal affairs or business than they really need to know	39.2	24.1	1.63*
Hospitals have sometimes done harmful experiments on patients without their knowledge	50.6	26.0	1.95*
Rich patients receive better care at hospitals than poor patients do	57.8	30.2	1.91*
Male patients receive better care at hospitals than female patients do	9.6	6.1	1.57*

*$p < .001$.

Finally, although black patients were more likely than white patients to perceive that patients receive differential treatment based on the gender of the patient, only 9.6 percent of black and 6.1 percent of white patients agreed or strongly agreed that sexism existed at hospitals. An examination of this question by gender found that 8.2 percent of white females and 10.6 percent of black females agreed or strongly agreed that men receive better care. The number of white and black men who agreed or strongly agreed was 4.4 percent and 8.2 percent, respectively.

In Table 25.4, we report patients' responses to five items measuring patient satisfaction with the care they received during their cardiac hospitalization. Patients were asked the following question: "Thinking back again to your hospitalization that we have been discussing, how would you rate the main doctor who treated you on the job he or she did (1) providing you with good health care overall, (2) treating you with dignity and respect, (3) making sure you understood what you had been told about your medical problems and medications, (4) listening to your health concerns and taking them seriously, and (5) being available either by phone or in person?" Patients were asked to respond using one of four categories: excellent, good, fair, or poor.

Table 25.4 shows that African American patients were consistently less likely to report good or excellent satisfaction with care. Of white patients, 73 percent

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Table 25.4. Race Differences in Items in the Patient Hospital Satisfaction Index, Percent Reporting Good and Excellent Care from Main Doctor While in the Hospital

Variable	Black	White	Black-White Ratio
Thinking back again to your hospitalization that we have been discussing, how would you rate the main doctor who treated you on the job he or she did providing you with good care overall?	61.4	73.4	.84*
treating you with dignity and respect?	65.6	77.7	.84*
making sure you understood what you had been told about your medical problems and medications?	59.2	70.5	.84*
listening to your health concerns and taking them seriously?	58.8	71.7	.82*
being available either by phone or in person?	55.6	68.6	.81*

*$p < .001$.

reported that the doctor did a good/excellent job of providing good care overall, while only 61.4 percent of African American respondents reported good or excellent care. Nearly 78 percent of white patients felt that the doctor did a good or excellent job of treating them with dignity and respect compared with 65.6 percent for African Americans. Fifty-nine and 70 percent of African American and white patients, respectively, responded that they felt that the attending physician did a good or excellent job of making sure they understood what they had been told about their medical problems and medications. The percentage of white respondents reporting that the doctor had done a good/excellent job of listening to their health concerns was 71.7 percent yet only 58.5 percent for black patients. Finally, while 68.6 percent of white patients reported that the doctor had done a good or excellent job of being available, less than 56 percent of black patients felt that way.

In the next set, we conducted multivariate analyses to determine if race differences in patient satisfaction persist after controls for other variables found to be determinants of patient satisfaction in previous studies. First, we control for patient gender, age, insurance status, and educational attainment. In subsequent analysis, we test models to determine if race differences in patient satisfaction can be

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Table 25.5. Pearson Product-Moment Correlations and Mean Differences Among Perceived Racism, Medical Mistrust, and Patient Satisfaction

	Satisfaction	Racism	Mistrust
Racism	$r = -.19$ $(p < .000)$		
Mistrust	$r = -.25$ $(p < .000)$	$r = .53$ $(p < .000)$	
Patient's race	$\chi_b = 3.5$, $SD_b = .62$ $\chi_w = 3.7$, $SD_w = .55$ 95%CI (.091, .205) range = 1–4	$\chi_b = 2.3$, $SD_b = .32$ $\chi_w = 2.0$, $SD_w = .45$ 95%CI (−.306, −.198) range = 1–4	$\chi_b = 2.4$, $SD_b = .40$ $\chi_w = 2.2$, $SD_w = .35$ 95%CI (−.243, −.170) range = 1–4

explained by patients' perception of racism in the health care system and medical mistrust. In these analyses, patient satisfaction, perceived racism, and medical mistrust were each specified as an index by calculating an average score across each of the items. Tests of interreliability yielded alpha coefficients of .93, .76, and .74 for the patient satisfaction, racism, and medical mistrust indexes, respectively. Pearson product-moment correlations among the three attitude variables and mean race differences are displayed in Table 25.5.

The correlation analysis shows significant associations among each index. Perceived racism and patient satisfaction have an inverse association, wherein a greater perception of racism is associated with less patient satisfaction. This is also the case for medical mistrust. Tests for mean differences for each attitude index showed that African American patients were significantly less satisfied with care, perceived more racism, and reported more medical mistrust.

In Table 25.6, we examined predictors of patient satisfaction using ordinary least squares (OLS) regression. Model 1 shows that after controls for patient gender, age, health insurance status, education, and number of nights spent in the hospital within the past 12 months, race remained as a significant predictor of patient satisfaction. African American patients report significantly less satisfaction with care. In Model 2, patients' perception of racism within the health care system is added to the baseline model. The analysis shows a significant inverse association with patient satisfaction in which patients who perceived more racism were less satisfied with their care. Also in this model, patients' race was no longer a significant predictor of patient satisfaction.

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Table 25.6. Linear Regression Models Predicting Patient Satisfaction with Main Doctor While Hospitalized (unstandardized coefficients and significance level in parentheses)

Variable	Model 1	Model 2	Model 3	Model 4
Black	−11 ($p < .00$)	−.06 ($p = .16$)	−.05 ($p = .08$)	−.05 ($p = .20$)
Male	.04 ($p = .21$)	.04 ($p = .32$)	.03 ($p = .28$)	.04 ($p = .31$)
Age (comparison < 50)				
Age 50 to 64	.11 ($p < .01$)	.18 ($p < .01$)	.10 ($p = .03$)	.17 ($p < .01$)
Age 65 to 79	.09 ($p = .10$)	.13 ($p = .09$)	.07 ($p = .17$)	.12 ($p = 12$)
Age 80 and older	−.01 ($p = .89$)	.09 ($p = .32$)	−.01 ($p = .81$)	.08 ($p = .40$)
Medicaid	.02 ($p = .30$)	.03 ($p = .41$)	.01 ($p = .52$)	.02 ($p = .49$)
Medicare	−.02 ($p = 61$)	−.02 ($p = .64$)	−.02 ($p = .51$)	−.03 ($p = .57$)
Education	.00 ($p = .95$)	.02 ($p = .62$)	.00 ($p = .83$)	.00 ($p = .70$)
Hospitalizations	−.04 ($p < .00$)	−.03 ($p = .11$)	−.03 ($p < .00$)	−.02 ($p = .15$)
Racism		−.26 ($p < .00$)		−.17 ($p < .01$)
Mistrust			−.33 ($p < .01$)	−.14 ($p < .01$)
Constant	3.54 ($p < .00$)	4.01 ($p < .00$)	2.65 ($p < .00$)	3.44 ($p < .00$)
R^2 (adjusted)	.02	.05	.07	.05

In Model 3, we remove patients' perception of racism and include medical mistrust in the analysis. This analysis found a significant inverse effect of medical mistrust on patient satisfaction. In addition, in this model patients' race was not a significant determinant of patient satisfaction. In Model 4, we simultaneously test the effect of perceived racism and medical mistrust on patient satisfaction. The model shows independent inverse effects on patient satisfaction. After controls for patient race, gender, age, educational attainment, and health insurance status, patients who perceive more racism report being less satisfied with their care. Also, patients who were more mistrustful of health care were less satisfied. Finally, the inclusion of both attitude variables led to the elimination of the significant effect of patients' race on satisfaction with care ($p = .08$).

In Table 25.7, we examine the effect of whether there is an association between obtaining a referral for coronary angiography and patients' attitudes. We regressed each patient attitude measure on a binary variable indicating whether the patient obtained a referral during his or her hospitalization. The analysis shows that in each case, obtaining a referral led to a more positive patient attitude. That is,

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Table 25.7. Perceived Racism, Medical Mistrust, and Patient Satisfaction Regressed on Receipt of a Referral for Coronary Angiography

	Satisfaction	Racism	Mistrust
Received a referral	b = .23 *SE* = .03 *p* < .00	b = − .06 *SE* = .03 *p* < .00	b = − .06 *SE* = .02 *p* < .00
Constant	3.41	2.26	2.66
R^2 (adjusted)	.03	.00	.00

patients who obtained a referral had less mistrust, were less likely to perceive racism, and were more likely to be satisfied with the care they received.

Discussion

Bivariate analysis found that African American cardiac patients were less likely to report being satisfied with the quality of medical care and the treatment they receive in medical care settings. Although both black and white patients tended not to endorse statements regarding the existence of racism in the medical care system, African American patients were significantly more likely to agree with these statements. Both white and African American cardiac patients displayed substantial mistrust of the medical care system; however, African Americans were significantly more likely to report mistrust across all measures. In multivariate analysis, we found that patients' attitudes regarding the existence of racism in the medical care system and patients' level of medical mistrust were significant predictors of patient satisfaction. That is, patients who perceived more racism and who were more distrustful of the medical care system reported less satisfaction with care.

Moreover, in models that included both perceived racism and medical mistrust, there was no significant effect of race on satisfaction. This is a promising finding that requires replication and further study. This finding suggests that if it is possible to develop interventions to improve experiences of African American patients as it relates to racism and medical mistrust, it may be possible to reduce race differences in patient satisfaction and possibly reduce race disparities in health services use.

Medical mistrust among African Americans is a long-held attitude stemming from centuries of racial discrimination and maltreatment (Gamble 1997). Although

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the Tuskegee Syphilis Study is the best known example, mistreatment of African Americans within the health care setting predates Tuskegee (Savitt 1982), and the lingering effects persist decades after that study became a catalyst for reform of human subjects protections (Baker 1999).

As a consequence of poorly managed medical conditions, African American patients have more avoidable hospitalizations compared with whites (Pappas et al. 1997). Yet they undergo fewer medical procedures when indicated (Ayanian et al. 1993; Ford et al. 1989; Franks et al. 1993; Gatsonis et al. 1995; Giles et al. 1995; Goldberg et al. 1992; Hannan, Kilburn, and O'Donnell 1991; Johnson et al. 1993; Maynard et al. 1986; McBean, Warren, and Babish 1994; Mirvis et al. 1994; Wenneker and Epstein 1989; and Whittle et al. 1993). It is certainly possible, therefore, that greater medical mistrust is grounded in the real-life experiences of the patients in this study. Their attitudes may, in fact, be well founded. A true test of the effect of race differences in medical care treatment on patient attitudes would require longitudinal data, which is not yet available. Our correlation analysis found an association between whether the patient was appropriately referred for coronary angiography and the patient's attitude. Patients not referred were more likely to perceive racism and report more mistrust and less satisfaction. Because the data reported in this article are from the first wave of the CAL Study (which is cross-sectional), we are unable to test the causal direction of this association at this time. Such data will be available in future data collections as the CAL Study progresses.

While it is true that medical mistrust has become an entrenched attitude among African Americans, this does not indicate that this attitude cannot be modified. Cooper-Patrick and colleagues (1999) found that African American patients reported a greater degree of participation in their care and treatment decision making when they saw a doctor of their own race. Gray and Stoddard (1997) demonstrated that African Americans and other ethnic minorities are more likely to select a minority physician when one is available. And LaVeist et al. (2000) found an association between patient-provider racial concordance and patient's perception of discriminatory treatment. Patients who were the same race as their provider were less likely to report experiencing discrimination. This suggests that encounters with medical care providers who are better able to interact with African American patients (regardless of the provider's race) may have a positive effect on patient's perceptions of racism, medical mistrust, and satisfaction with care. Such a physician would be more effective obtaining optimum outcomes for African American patients.

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Appendix

Diagnostically Related Groups (DRGs) Used to Select Patients for the Study.

DRG	*Condition*
115:	Perm cardiac pacemaker implant w ami, heart failure, or shock
116:	Perm cardiac pacemaker implant without ami, heart failure, or shock
117:	Cardiac pacemaker revision except device replacement
118:	Cardiac pacemaker device replacement
119:	Vein ligation and stripping
120:	Other circulatory system o.r. procedures
121:	Circulatory disorders w ami & c.v. comp disch alive
122:	Circulatory disorders w ami w/o c.v. comp disch alive
123:	Circulatory disorders w ami, expired
124:	Circulatory disorders except ami, w card cath, and complex diag
125:	Circulatory disorders except ami, w card cath w/o complex diag
126:	Acute and subacute endocarditis
127:	Heart failure and shock
129:	Cardiac arrest, unexplained
132:	Atherosclerosis with cc
133:	Atherosclerosis without cc
134:	Hypertension
135:	Cardiac congenital and valvular disorders, older than age 17, with cc
136:	Cardiac congenital and valvular disorders, older than age 17, without cc
137:	Cardiac congenital and valvular disorders age 0–17
138:	Cardiac arrhythmia and conduction disorders with cc
139:	Cardiac arrhythmia and conduction disorders without cc
140:	Angina pectoris
141:	Syncope and collapse with cc
142:	Syncope and collapse without cc
143:	Chest pain
144:	Other circulatory system diagnoses with cc
145:	Other circulatory system diagnoses without cc

NOTE: *DRGs 115–145 (excluding 128, 130, and 131) are included in this study.*

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