ARIC Manuscript Proposal # 971

PC Reviewed: 11/21/03	**Status: A**	**Priority: 2**
SC Reviewed: 11/24/03	**Status: A**	**Priority: 1**

1.a. Full Title: Use of invasive and noninvasive cardiac diagnostic procedures for hospitalized myocardial infarction; disparities, trends, and outcomes. The Atherosclerosis Risk in Communities Study

b. Abbreviated Title (Length 26 characters): Trends in CV Procedures

2. Writing Group (list individual with lead responsibility first):

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3. Timeline: Data Analysis Fall 2003
Manuscript preparation Winter 2003-04

4. Rationale:

The past several years have brought significant advances in the management of patients with acute myocardial infarction (MI) with dramatic increases in the use of many cardiac procedures (1). The benefits of invasive procedures such as percutaneous transluminal coronary angioplasty (PTCA) in many patients have been clearly demonstrated and have received much attention (2), However, non-invasive diagnostic procedures such as echocardiography and exercise stress testing have also been shown to be useful especially in determination of prognosis post MI (3). Nonetheless, despite the benefits and indications, numerous studies have shown that the use of these procedures varies widely by a number of factors. Disparities have been observed by patient race (4-11), gender (12;13), age (14;15), socioeconomic status (16;17), insurance status (18;19), and geographic location (20-22), usually with blacks, women, and the poor less likely to undergo these procedures. It has also been shown that CHD mortality differs along many lines similar to those seen with differences in procedure usage, with blacks, women, and the poor often having worse outcomes (23-26), and it has also been suggested that differences in the use of these procedures may be related to outcomes (27-32).

Given that procedure use is very clearly related to health care costs of which coronary artery disease makes up a large share (33), and that health disparities and health care quality and costs have become issues of increasing public concern and attention, it is important that use of these procedures be better understood. Most of the studies examining the use of cardiac procedures have been largely focused only on documenting the disparities. Only a small fraction of the differences have been actually related to factors such as patient preferences (34;35) and clinical characteristics (36;37), and physician characteristics (38-42). The literature has also been focused predominantly on the use of invasive cardiac procedures such as angiography, PTCA, and coronary artery bypass graft (CABG) surgery. The use of noninvasive diagnostic procedures has not been well explored. In addition, the reasons for the known and potential disparities and how much they may be related to outcomes are still unclear.

ARIC surveillance data obtained through 2000 allows for an analysis of both invasive and noninvasive cardiac testing for a large number of patients hospitalized for acute myocardial infarction in the United States by patient and hospital characteristics over time. It also allows for some evaluation of morbidity and mortality outcomes relative to receiving procedures.

5. Main Hypothesis/Study Questions:

1. The performance of coronary angiography and noninvasive cardiovascular diagnostic procedures for patients hospitalized with acute MI differs by patient characteristics including gender, ethnicity, age, and insurance type.
2. These differences are not fully accounted for by patient clinical factors.
3. These differences are related to patient outcomes.
4. The use of these procedures and the disparities in use has changed over time.

6. Data (variables, time window, source, inclusions/exclusions):

ARIC community surveillance data from admissions with acute MI.

Outcomes:

Procedures performed – coronary angiography, cardiac stress testing, echo, PTCA, CABG. (Cardiac CT or MRI if any data available)
Patient morbidity (hospital readmissions)
Patient mortality (30-day & 1 year)

Independent variables:

Patient characteristics – age, race, gender, diagnoses, clinical factors, MI severity, CV risk factors, comorbidities, health insurance status.
Hospital characteristics – hospital type, geographic region, subspecialty care

Analyses:

Examine CV procedure rates by gender, ethnicity, age, and insurance type & trends over time
Examine the associations between procedures and independent variables to identify predictors of receiving or not receiving each procedure/diagnostic test.

7 a. Will the data be used for non-CVD analysis in this manuscript? ____ Yes __X__ No

b. If Yes, is the author aware that the file ICTDER02 must be used to exclude persons with a value RES_OTH = "CVD Research" for non-DNA analysis, and for DNA analysis RES_DNA = "CVD Research" would be used?
(This file ICTDER02 has been distributed to ARIC PIs, and contains the responses to consent updates related to stored sample use for research.)

8 a. Will the DNA data be used in this manuscript? ____ Yes __ X__ No

8 b. If yes, is the author aware that either DNA data distributed by the Coordinating Center must be used, or the file ICTDER02 must be used to exclude those with value RES_DNA = "No use/storage DNA"? N/A

9. The lead author of this manuscript proposal has reviewed the list of existing ARIC Study manuscript proposals and has found no overlap between this proposal and previously approved manuscript proposals either published or still in active status. ARIC Investigators have access to the publications lists under the Study Members Area of the web site at: http://bios.unc.edu/units/cscc/ARIC/stdy/studymem.html

__X_ Yes _____ No

10. What are the most related manuscript proposals in ARIC (authors are encouraged to contact lead authors of these proposals for comments on the new proposal or collaboration)?

Proposal #550: McNamara - Trends in angiography Status: Inactive
- This proposal has been inactive. The authors have been contacted and are willing for the lead to be taken over with them as co-authors, extending analysis to also include noninvasive cardiac procedures, differences by patient characteristics, and associations with outcomes.

Proposal #85: Rosamond - Medical care and survival. Status: Active

Proposal #395: Rosamond - Trends in medication use for hospitalized MI. Status: Active

Weitzman S, Cooper L, Chambless L, et al. Gender, racial, and geographic differences in the performance of cardiac diagnostic and therapeutic procedures for hospitalized acute myocardial Infarction in four states. Am J Cardiol 1997; 79: 722-726.
- This paper covered years 1987-1991. This current proprosal will be an update with addition of years from 1991-2000 and will include noninvasive tests.

11. Manuscript preparation is expected to be completed in one to three years. If a manuscript is not submitted for ARIC review at the end of the 3-years from the date of the approval, the manuscript proposal will expire.

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