

ARIC Manuscript Proposal #2434

PC Reviewed: 9/9/14
SC Reviewed: _____

Status: A
Status: _____

Priority: 2
Priority: _____

1.a. Full Title: Trends in incidence and mortality of acute decompensated heart failure: ARIC Community Surveillance 2005-2012

b. Abbreviated Title (Length 26 characters): ADHF incidence & CF trends

2. Writing Group:

Writing group members:

Patricia Chang, Wayne Rosamond, Lisa Wruck, Eyal Shahar, Joseph Rossi, Stuart Russell, Sunil Agarwal, Laura Loehr, Suma Konety, Carlos Rodriguez.
Others Welcome.

I, the first author, confirm that all the coauthors have given their approval for this manuscript proposal. __PC__ [**please confirm with your initials electronically or in writing**]

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ARIC author to be contacted if there are questions about the manuscript and the first author does not respond or cannot be located (this must be an ARIC investigator).

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3. Timeline: Analysis ongoing (as part of a trend report submitted annually to NIH), to be completed this fall, first draft to be complete in 2 months.

4. Rationale:

The prevalence of heart failure (HF) increases with age, but the incidence of hospitalized acute decompensated HF (ADHF) has only been described by few studies, include the ARIC study. Recent population-based studies have reported encouraging trends in HF incidence, short-term case fatality, and hospitalization rates. In Western Australia, incidence of index hospitalization for HF has decreased steadily from 1990 to 2005 in both genders, whereas hospitalization for HF as a measure of health service used has increased, partly because of an aging population and improved HF survival (Teng et al, *Circ Heart Failure* 2010;3:236-43). In Sweden, the trend in incident HF differed by age (18-44 versus ≥ 45 years) but case fatality decreased for all age groups (Barasa A et al, *Eur Heart J* 2014;35:25-43). Among Medicare beneficiaries who are obviously more racially diverse than non-US populations, overall HF hospitalization rate has declined substantially from 1998 to 2008 (Chen J et al, *JAMA* 2011;306(15):1669-78), including HF hospitalizations following acute myocardial infarction (from 1998 to 2010) (Chen J et al, *Circulation* 2013;128(24):2577-84). But this decrease in HF hospitalization differs by race and gender, with the lowest rate of improvement in black men (Chen J et al, *JAMA* 2011;306(15):1669-78). Nonvalidated HF cases from the Nationwide Inpatient Sample suggest age and gender disparities in HF outcomes in 2007-2008: men fared worse than women regardless of age, and there was a U-shaped relationship between age and in-hospital mortality during a HF hospitalization, such that young adults had similar mortality rates to older adults (Rodriguez F et al, *J Card Fail* 2013;19(8):542-9). Moreover, there are age, race and gender differences in the trends of HF hospital stay rates; for example, in contrast to other race-gender groups, black men did not show a decline in HF hospital stay rate from 2001 to 2009 based on Nationwide Inpatient Sample data (Chen J et al, *J Am Coll Cardiol* 2013;61(10):1078-88). While other community-based surveillance studies have reported trends in HF rates (Framingham Study, Olmsted County, Minneapolis-St. Paul, Worcester Heart Failure Study), these trends mostly reflect white Americans. Moreover, many of these studies have been unable to differentiate the HF type, HF with reduced ejection fraction (HFrEF) or with preserved ejection fraction (HFpEF).

The purpose of the manuscript is to describe trends in HF event rates by HF type for ARIC's biracial population age 55 and older for years 2005 through 2012.

5. Main Hypothesis/Study Questions:

1. Do the trends in incident hospitalized ADHF and recurrent hospitalized ADHF between 2005 and 2012 differ by HF type? If differences exist, are they based on difference by age, race, gender, or ischemic etiology (e.g., post-MI)? If there are racial or gender disparities, are they related to differences in risk factor burden?
2. What are the trends in case fatality by HF type, by demographics (age, race-gender groups), by etiology (e.g., ischemic or post-MI), or by specific comorbidities (e.g., coronary heart disease, chronic kidney disease, COPD)?

3. Do the trends in length of stay differ by HF type, age, race-gender group, and by specific comorbidities (e.g., coronary heart disease, chronic kidney disease, COPD)?

6. Design and analysis (study design, inclusion/exclusion, outcome and other variables of interest with specific reference to the time of their collection, summary of data analysis, and any anticipated methodologic limitations or challenges if present).

This paper will use community surveillance data complete for HF events occurring between 2005 and 2012 for ages 55 and older.

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 ICTDER03 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? ____

Yes ____ No

(This file ICTDER 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 ICTDER03 must be used to exclude those with value RES_DNA = "No use/storage DNA"?
____ Yes ____ No

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://www.csc.unc.edu/ARIC/search.php>
__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)?

MS# 1489 (Chang et al): Incident ADHF

MS# 2153 (Rosamond et al): MI incidence trends

