

ARIC Manuscript Proposal # 1765

PC Reviewed: 3/8/11
SC Reviewed: _____

Status: A
Status: _____

Priority: 2
Priority: _____

1.a. Full Title: Incorporating Outcomes Research into an Ongoing Prospective Observational Study of Cardiovascular Disease

b. Abbreviated Title (Length 26 characters): Outcomes Research in ARIC

2. Writing Group: Writing group members:

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I, the first author, confirm that all the coauthors have given their approval for this manuscript proposal. _SCS_ **[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: The paper is to be drafted by June 2011 for presentation at AHQR CER conference. The paper fits the criteria for session topic 4 at the link below:

<http://www.effectivehealthcare.ahrq.gov/index.cfm/methods-for-developing-and-analyzing-clinically-rich-data-for-patient-centered-outcomes-research/>

If this manuscript proposal is approved and if the abstract submitted for the conference is accepted, then the paper will be presented at the conference on June 6-7, 2011. (If the manuscript proposal is not approved, then the abstract that is going to be submitted will be withdrawn from the conference, as per standard ARIC procedures.) As indicated at the website, some (but not all) of the papers from the conference will be selected for peer-reviewed publication.

4. Rationale:

In 2010, the National Heart, Lung and Blood Institute (NHLBI), provided funding for a Cardiovascular Outcomes Research Center (CORC) to expand the scope of the Atherosclerosis Risk in Communities Study (ARIC). This study represents the first time NHLBI has provided separate funding for outcomes research as part of an epidemiological study. While the contract provides some funding for CORC investigators to conduct outcomes and comparative effectiveness research directly, the project is also intended to:

- help engage current ARIC investigators in outcomes research
- encourage investigators from outside ARIC to participate in analysis of public use data from the NHLBI Data Repository.

This paper will serve as a methodology paper for the future publications from ARIC CVD outcomes research efforts.

5. Main Hypothesis/Study Questions:

This paper will describe the design of the outcomes research that the CORC will help incorporate into the population-based ARIC Study. The overriding goal of the CORC is to assess the quality, cost, and outcomes of medical care in the community settings, with a focus on heart failure risk factors and heart failure. The paper will discuss CVD outcomes research questions that can be addressed in an epidemiologic study such as ARIC, selected outcomes measures and data to be collected, and challenges in statistical

analysis. The modeling of causal relationships and use of methods to address treatment selection will be emphasized.

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).

The first part of the paper will describe the Cohort and Community Surveillance Components of ARIC, including study design, sample sizes, and data sources prior to the initiation of the CORC, prevalence of CVD and CVD risk factors, and opportunities for outcomes research or outcomes research questions that can be addressed in ARIC.

The second section of the paper will describe the CORC, which represents a novel effort to incorporate outcomes research in a population-based non-randomized prospective study. The CORC initiated collection of data not previously collected in ARIC for the Cohort Component: access to care and usual source of care measures, patient satisfaction, Medicare Part D data, medication adherence (both self-reported and as ascertained from Part D claims), and patient-reported quality of life including both generic (SF-12, PROMIS) and disease-specific measures. Under the CORC, Part D data will also be obtained for the Community Surveillance Component. These new measures add to the information on treatments and cost of care already available in the ARIC study (e.g., Medicare Part A and Part B claims). More specifically, these measures not only increase the scope of issues to be addressed by ARIC (both Cohort and Surveillance Components) but also raise important methodological issues including: specification of causal pathways, risk stratification, reducing bias from treatment selection; identifying heterogeneity of treatment effects; and adjusting cost estimates for censoring from death given the aging of the sample over time.

The third section of the paper will use two research questions to illustrate these issues with respect to treatment effects on outcomes: the use of appropriate medical therapy at the time of discharge from hospitalization and the impact of medication adherence. The comparator for these treatment will be lack of appropriate medical therapy or lack of medication adherence. Methods that capitalize on the structure of the dataset (e.g., hospital fixed effects and time-varying instrumental variables) will be described. Descriptive statistics of selected diseases and treatment rates will be provided to help identify treatments with sufficient versus potentially insufficient power (e.g., pharmacologic treatments versus implantable cardioverter-defibrillator and cardiac resynchronization therapy to treat heart failure). Actual implementation of these analyses will be conducted in the future (i.e., under separate manuscript proposals).

In total the paper will demonstrate how the detailed clinical measures merged with administrative data and augmented by newly collected measures in the aging sample of ARIC/CORC offer a rich opportunity for cardiovascular outcomes research and comparative effectiveness research for other chronic diseases.

7.a. Will the data be used for non-CVD analysis in this manuscript?

☐ Yes ☒ 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 ICTDER03 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 ☒ 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.cscce.unc.edu/ARIC/search.php>

☒ 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 1490 Chang et al., Utilization of optimal medical therapy for hospitalized heart failure: the ARIC Study. *(The lead author of MS 1490, Patricia Chang, is a coauthor on this MS proposal. The new manuscript will likely lead to an expanded analysis in MS 1490 or a new collaboration.)*

MS 1709 Loehr et al., Racial and geographic comparisons in the presentation, co-morbid conditions and treatment in acute decompensated heart failure. *(We do not believe there is overlap with MS 1709 because MS1709 does not focus on outcomes. That said, factors that are associated with treatment choice will be one component of our analysis, so this MS proposal is being sent to Dr. Loehr for comment and possible collaboration.)*

11. a. Is this manuscript proposal associated with any ARIC ancillary studies or use any ancillary study data? ☐ Yes ☒ No

11.b. If yes, is the proposal

- ____ A. primarily the result of an ancillary study (list number* _____)
- ____ B. primarily based on ARIC data with ancillary data playing a minor
role (usually control variables; list number(s)* _____
_____)

*ancillary studies are listed by number at <http://www.csc.unc.edu/aric/forms/>

- 12. 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.**