ARIC Manuscript Proposal # 1106

1.a. Full Title: Investigating the effect of the AHA 2003 definition of acute CHD on CHD incidence rates in ARIC community surveillance

b. Abbreviated Title (Length 26 characters): AHA 2003 acute CHD defn.

2. Writing Group:
   Writing group members: David Couper, Wayne Rosamond, Thomas Erlinger, David Goff, Mike McMullan, Stanley Watkins.

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

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4. Rationale:

   In 2003 the American Heart Association published new definitions for acute CHD for use in epidemiology studies (Luepker RV et al. 2003). The new definitions differ from the older WHO MONICA definitions (Tunstall-Pedoe et al. 1994) primarily in the use of cardiac biomarkers, in particular troponins. A recent manuscript (Salomaa et al. 2005) compared the 2003 definition with the WHO MONICA definition using cardiac enzymes in the FINAMI Study, a population-based register in Finland (Salomaa et al. 2003). They found that the 2003 AHA definition identified more definite MIs than the WHO MONICA definition. They also found that the additional patients were older, more had diabetes, and fewer received thrombolysis and
revascularization. Among those aged 25-74, the additional patients had a higher 1-year CVD mortality rate, after adjusting for age, gender, year and study area.

The current ARIC MI definition uses peak troponin levels, whereas the new AHA 2003 definition includes looking at a rising or falling pattern. ARIC medical record abstraction collects up to four days of biomarker values, which will allow an investigation into rising and falling patterns of troponin. There are some limitations to the data on biomarker patterns as ARIC does not record actual time of biomarker measurement, rather only the date. While ARIC meets the recommendations found in the AHA consensus document that measurements used for a marker be taken at least 6 hours apart, our characterization of the exact timing of a rise or fall is limited. We will investigate the sensitivity of the results to the precise specification of the pattern.

5. Main Hypothesis/Study Questions:

(a) Using a patient’s variation in troponin levels in determining MI diagnosis will identify the same number of cases as the current ARIC MI diagnosis.

(b) If the number of cases identified differs, those satisfying the AHA 2003 definition will have a higher 1-year CVD mortality rate than those satisfying the ARIC definition, after adjusted for age, gender, clinical center and year of diagnosis.

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

Community surveillance data, from the time of high penetrance of testing of troponin levels (1997) through the most recent available data. All participants will be included. Variables of particular interest are ARIC MI diagnosis and all troponin data.

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? ___ Yes ___ No

(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”? ___ 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.cscc.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)?

MS713: Some overlap – that manuscript is looking at how the inclusion of troponins affects trends using the ARIC MI definition, rather than comparing the ARIC definition with the new AHA guidelines. Lead author (Rosamond) is on the writing group for this new proposed manuscript.

MS725: Minimal overlap – that manuscript is looking at prognosis, based on MI severity, including levels of troponins.

MS965: Minimal overlap – that manuscript is comparing isolated troponin elevation with ARIC MI, rather than looking at the effect of changing the way troponin is used in the definition of an MI.

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.cscc.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.

References

World Heart Federation Council on Epidemiology and Prevention; European Society of Cardiology Working Group on Epidemiology and Prevention; Centers for Disease Control and Prevention; National Heart, Lung, and Blood Institute. Case definitions for acute coronary heart disease in epidemiology and clinical research studies: a statement from the AHA Council on Epidemiology and Prevention; AHA Statistics Committee; World Heart Federation Council on Epidemiology and Prevention; the European Society of Cardiology Working Group on Epidemiology and Prevention; Centers for Disease Control and Prevention; and the National Heart, Lung, and Blood Institute. Circulation. 2003 Nov 18;108(20):2543-9.

