ARIC Manuscript Proposal # 3138

PC Reviewed: 3/20/2018	**Status: _____**	**Priority: 2**
SC Reviewed: _____	**Status: _____**	**Priority: ____**

1.a. Full Title: The Association of Life's Simple 7 and Incident Abdominal Aortic Aneurysm

b. Abbreviated Title (Length 26 characters): Life's Simple 7 and AAA

2. Writing Group:
Writing group members: Abayomi Oyenuga, Aaron Folsom, Pam Lutsey, Weihong Tang

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

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3. Timeline: start spring 2018

4. Rationale:

Abdominal Aortic Aneurysm (AAA) is a permanent, progressive, potentially fatal, localized dilatation of the transverse diameter of the abdominal aorta. It is usually asymptomatic, and is discovered incidentally or following rupture.[1] Left untreated, as many as 1 in 3 AAAs eventually rupture.[2] The mortality following emergency surgery for individuals presenting with ruptured AAAs ranges from 30 – 60%.[3-6]

Screening provides a means for early identification of AAA cases and prevention of possible rupture. The US preventive services task force (USPSTF) recommends one-time screening for AAA in men aged 65 to 75 who have ever smoked. [7] While there are significant benefits to screening for AAA, there are also limitations and harm associated with screening[1,7]. Firstly, screening has no impact on reducing AAA incidence. Secondly, it is associated with an increased number of surgeries and their attendant morbidity and mortality[7], and lastly, it is associated with lower quality of life due to psychological harm in individuals undergoing ongoing surveillance.[1,8]

A helpful strategy to reduce the mortality and morbidity due to AAA is primary prevention. In 2010, the American Heart Association (AHA) published recommendations, "Life's Simple 7" aimed at obtaining and maintaining ideal cardiovascular health. Life's simple 7 is a selection of 7 risk factors or behaviors namely: smoking, body mass index, physical activity, diet, total cholesterol, blood pressure, and fasting serum glucose. They have been identified to be associated with cardiovascular disease and cancer.[9,10] Adherence to the AHA guidelines regarding these risk factors have been shown to be inversely associated with incident heart failure.[11]

Several studies have examined the relationships of several of these risk factors to AAA, [12-17] however, we did not find any that examined the relationship between adherence to Life's Simple 7, as a whole, and incident AAA. In ARIC, Tang et al. documented that age, male gender, white race, current and former smoking, pack-years of smoking, hypertension, peripheral arterial disease (PAD), height, low-density lipoprotein (LDL), high-density lipoprotein cholesterol (HDL-C), and total cholesterol were risk factors for AAA, but did not examine diet or -Life's Simple 7.[18] For this study, we aim to examine the association between adherence to Life's Simple 7 in midlife and incident AAA in the ARIC cohort.

5. Main Hypothesis/Study Questions:

Adherence to Life's Simple 7 at ARIC baseline is associated inversely with Abdominal Aortic Aneurysm incidence in the ARIC cohort.

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).

Design: cohort

Endpoints: time to AAA incidence.

Exposure: Components of Life's Simple 7. We will transform the Life's Simple 7 into 2 variables for analysis.

1. The number of components of Life's simple 7 met by each participant.

2. As done in REGARDS,[19] we will create a score in which each component is given points of 0, 1, or 2 which represents poor, intermediate, or ideal health categories, respectively. The sum of these scores across the 7 components will be subsequently categorized as inadequate (0-4), average (5-9), and optimal (10-14) for cardiovascular health.

Exclusions: prevalent AAA, missing AAA status at baseline, missing Life's Simple 7 data.

Main covariates: age, sex, and race.

Analysis: We will calculate incidence rates of AAA and 95% confidence intervals using Poisson regression, and calculate hazard ratios (HR) and 95% confidence intervals of incident AAA using Cox proportional hazards models.

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.cscc.unc.edu/ARIC/search.php

___xx___ 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)?

Tang W, Yao L, Roetker NS, et al. Lifetime Risk and Risk Factors for Abdominal Aortic Aneurysm in a 24 Year Prospective Study: the ARIC Study. Arteriosclerosis, thrombosis, and vascular biology. 2016; 36(12):2468-2477. doi:10.1161/ATVBAHA.116.308147.

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

11.b. If yes, is the proposal

__x_ A. primarily the result of an ancillary study (list number* __AS 2009.18: "Identifying Genetic and Epidemiological Risk Factors for Abdominal Aortic Aneurysm", *R01 HL103695*_____**)**

___ 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/

12a. 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.

12b. The NIH instituted a Public Access Policy in April, 2008 which ensures that the public has access to the published results of NIH funded research. It is **your responsibility to upload manuscripts to PubMed Central** whenever the journal does not and be in compliance with this policy. Four files about the public access policy from http://publicaccess.nih.gov/ are posted in http://www.cscc.unc.edu/aric/index.php, under Publications, Policies & Forms. http://publicaccess.nih.gov/submit_process_journals.htm shows you which journals automatically upload articles to PubMed central.

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