ARIC Manuscript Proposal #2161

1.a. Full Title: Characteristics of the CMS Medicare fee-for-service and managed care beneficiaries, participants of the ARIC cohort

b. Abbreviated Title (Length 26 characters): CMS Medicare FFS and MA

2. Writing Group:
Writing group members: Anna Kucharska-Newton, Lisa Wruck, Miguel Quibrera, Sally Stearns, Lindsay Smith, Jackie Wright, others welcome

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

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3. **Timeline**: Analyses based on available CMS Medicare data to start immediately following proposal approval. Target deadline for manuscript completion is dependent on receipt of complete CMS Medicare data from CMS (expected in summer 2013)

4. **Rationale**:  
The ARIC study has acquired CMS Medicare data for all eligible ARIC cohort participants. Those data constitute a rich source of information on healthcare utilization. Complete healthcare claims are, however, available only for those CMS Medicare beneficiaries who are not members of managed care (Medicare Advantage) programs, such as Health Maintenance (HMO) organizations, and those who have full benefits providing insurance coverage for hospitalizations (Part A) and ambulatory care (Part B). Additionally, Medicare beneficiaries can choose to enroll in Part D plans which provide insurance for drug-related expenditures. Enrollment in Medicare Part D is not dependent on managed care enrollment.

Managed care organizations receive capitated payments from CMS Medicare and are not required to provide detailed information concerning enrollee claims. With capitation based on costs of care predicted for each enrollee, managed care programs have the incentive to select beneficiaries with actual costs of care below predicted levels\(^1,2\). Although use of preventive care services is greater among beneficiaries in managed care programs in comparison with those in fee-for-service care\(^3\), evidence with respect to the effect of enrollment in Medicare Advantage programs on health outcomes is mixed\(^4\). In particular, outcomes for heart disease patients enrolled in managed care programs are similar to those of patients in fee-for-service programs,\(^5,6\) although this evidence is from prior to 2000.

In ARIC, enrollment in managed care varies across the study centers and across the years, with the proportion of managed care enrollees in the Forsyth County and Minnesota study centers consistently greater than 38%. Managed care enrollment has steadily increased in the Jackson study center from 4% in 2005 to 38% in 2009. The lowest proportion of managed care enrollees has been consistently low in the Washington County study center (less than 10% in 2009).

Analyses of healthcare utilization patterns from the CMS Medicare data are, by necessity, limited to fee-for-service study participants, and inferences can only be made to that group of Medicare beneficiaries. In an effort to evaluate the generalizability of current and future analyses based on the CMS Medicare data in ARIC, we propose to compare health status of the ARIC cohort participants who are members of managed care programs with fee-for-service Medicare beneficiaries. The ARIC cohort provides an ideal opportunity to perform this evaluation which can then serve as the basis for inferences of results obtained from the analyses of CMS Medicare data available for the ARIC study geographical areas (the ARIC Community CMS Medicare data).

5. **Main Hypothesis/Study Questions:**
1. CMS Medicare beneficiaries enrolled in managed care programs will have fewer cardiovascular disease risk factors and will be overall healthier than CMS Medicare beneficiaries in fee-for-service care.

2. Risk factor profiles will be similar for Medicare beneficiaries with and without Part D enrollment.

3. Health outcomes, including mortality and incidence of cardiovascular diseases, will be similar for study participants enrolled in managed care programs as compared to participants enrolled in fee-for-service programs.

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).

Study population: All ARIC cohort participants with available CMS Medicare claims available for the years 2000-2010 will be eligible for this study. Participation in managed care (currently labeled as Medicare Advantage) programs will be evaluated for each year and each month of the year on the basis of information provided in the Denominator file. Beneficiaries can enter and exit Medicare Advantage plans at any time once they are eligible for Medicare services. Assigning membership in the fee-for-service (FFS) versus Medicare Advantage (MA) categories is therefore not straightforward. We will initially assign cohort participants to the FFS or MA categories based on their declared membership at the time of Medicare enrollment. The proposed categorization, based on an assumption of static Medicare enrollment assessed at the beginning of enrollment, can potentially lead to biased estimates due to changes in Medicare Advantage enrollment that Medicare beneficiaries can exercise during the course of their membership in the program. In sensitivity analyses, designed to estimate the magnitude of this potential bias, we will create categories of “Ever enrolled in MA” versus “Never enrolled in MA.” We will also examine study participant characteristics with FFS and MA enrollment identified at the beginning of each calendar year, creating in effect person-year files. We will describe the patterns of enrollment in FFS and MA over time (e.g. frequency of change in enrollment status, time from initial enrollment to change in enrollment status) overall and by gender, race, and age at enrollment.

The FFS and MA beneficiaries will be compared with respect to the following characteristics:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Time of ascertainment</th>
</tr>
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<tbody>
<tr>
<td>Age</td>
<td>At time of CMS Medicare enrollment</td>
</tr>
<tr>
<td>gender</td>
<td>Visit 1</td>
</tr>
<tr>
<td>race</td>
<td>Visit 1</td>
</tr>
<tr>
<td>Educational attainment</td>
<td>Visit 1</td>
</tr>
<tr>
<td>BMI</td>
<td>At all visits</td>
</tr>
<tr>
<td>Smoking</td>
<td>At all visits</td>
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<tr>
<td>Systolic blood pressure</td>
<td>At all visits</td>
</tr>
<tr>
<td>Fasting glucose</td>
<td>At all visits</td>
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</tbody>
</table>
Distributions of the selected covariates at baseline (where appropriate) and at the time most proximally preceding CMS Medicare enrollment will be compared between the two groups of ARIC cohort Medicare beneficiaries (FFS and MA) using t-test and chi-square tests. Logistic regression analyses will be performed to compare age and covariate adjusted estimates.

A comparison of risk factor characteristics will be performed for ARIC Medicare beneficiaries enrolled in Part D Medicare plans and compared with characteristics of ARIC Medicare beneficiaries not enrolled in Part D.

We propose to provide estimates of risk factor profiles for the FFS and MA ARIC cohort participants overall and across all years within the study observation period (2000-2011) during which ARIC cohort members became eligible for Medicare, to detect possible secular trends.

The proposed comparison of the FFS and MA ARIC cohort participants will also include an assessment of outcomes, including mortality and incidence of myocardial infarction, stroke, and heart failure. We propose to construct Cox proportional hazard models to examine the risk of cardiovascular outcomes in follow-up through December 31, 2010 among the FFS and MA Medicare beneficiaries. Analyses will be two-fold and will include FFS and MA enrollment status defined at the time of enrollment with follow-up through the end of observation period, as well as FFS and MA enrollment status identified at the beginning of each calendar year with incident events identified during one year of follow-up.

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 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  ____ 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: http://www.cscw.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)?
None identified

11.a. Is this manuscript proposal associated with any ARIC ancillary studies or use any ancillary study data? __x__ Yes ___x__ 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.cscw.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.cscw.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.

References:

2. McWilliams JM, Hsu J, Newhouse JP. New risk-adjustment system was associated with reduced favorable selection in medicare advantage. Health affairs. 2012;31:2630-2640