Not There Yet: Medicare Part D and Elimination of Cardiovascular Medication Usage Socio-Demographic Disparities after Myocardial Infarction

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In this issue of *Circulation*, Lauffenburger and colleagues examine the effect of Medicare Part D implementation on statin, beta-blocker and angiotensin-converting-enzyme inhibitor (ACEI)/angiotensin receptor blockers (ARB) medication usage based on race/ethnicity and gender in the United States\(^1\). The authors utilized Medicare service claims in 85,017 post-myocardial infarction (MI) patients, aged 65 years and older. Their primary findings are that African-American (black) women are 30\% less likely to be adherent to ACEI/ARBs and statins at 1 year post-MI compared to white men. Additionally, women and black/Hispanic men had approximately 10\% lower medication adherence rates compared to white men.

In general, Asian men and women had similar medication adherence rates as white men, except for a 17\% lower use of beta-blockers in Asian women. These findings were noted despite similar rates of prescription usage at 30 days by race/ethnicity and gender 30-days post MI. The authors are to be commended for this effort, and in particular the thoughtful discussion of their findings. This manuscript is extremely important since only national, retrospective database information will capture background nationwide trends. Because the analyses incorporate 12 month medication usage prior to the index MI event, the analysis perhaps unintentionally takes into account pre-MI event medication factors that could affect post-MI adherence.

Nonetheless, some minor limitations of this manuscript are worthy of mention. First, as acknowledged by the authors, there is no information about aspirin use. Secondly, despite the “improvement” in accuracy of the Research Triangle Institute (RTI) methodology to identify race/ethnicity through first and last name recognition algorithms, obvious misclassification is possible and such an approach may be considered a form of stereotyping. Thirdly, since a third of subjects reside in the Southern United States (U.S), one wonders about reasons for the differential prevalence, an issue not addressed by this paper and perhaps might be outside of the
current scope. Fourth, while this analysis lacks associated CVD outcome data, these results suggest that health policy efforts must cross the threshold of access to care based primarily on insurance to include implementation efforts aimed at social and psychological barriers to long term-care continuity. The influence of biological, social and structural factors on racial/ethnic and gender differences in adherence to evidence based medications must be addressed.

Unfortunately, a majority of published work related to insurance subsidies is yet to examine the glaring issue of extremely different lifestyles by gender along the spectrum of racial/ethnic groups in the U.S. For example, unique stressors experienced by elderly black women such as lack of comprehensive social support, demands to be the stabilizing elderly parent or caregiver of multiple family generations, lack of wealth or access to a comfortable “nesting location/situation” might significantly impact medication adherence. Additionally, recognition and acknowledgement that ethnic heterogeneity exists among blacks and Hispanics as in other racial/ethnic groups is crucial to strategies aimed at minimizing post-MI outcome disparities. Psychological stressors faced by elderly black/Hispanic women can be magnified and are uniquely different than those faced by other socio-demographic groups once the intersection between race/ethnicity, gender and age are taken into consideration. Indeed, ignoring the latter and principally working under the assumption that provision of improved access to medications and quality health care will result in “a rising tide will float all boats” phenomenon is foolhardy. In this respect, the authors of this paper do a nice job in their discussion section pointing out the significance of factors such as social support and other environmental determinants of health post-MI that need to be addressed if the differences by race/ethnicity and gender in their data are to be attenuated.

The interplay between social and biological issues can disproportionately and negatively
affect elderly blacks and Hispanics receiving Medicare Part D in a manner that extends total financial burden beyond that of out of pocket medication costs. For example, emerging evidence suggests that elderly black and Hispanic Americans might be more susceptible to cognitive decline and dementia due to a combination of biological and cultural factors including variations in genetics, normative aging perception by race/ethnicity, health literacy and acculturation\textsuperscript{2}. In turn, the amalgamation of cognitive decline and its associated stigma result in reluctance by the elderly patient, caregiver or health care provider to acknowledge or address cognitive decline. Direct effects of cognitive decline on medication adherence include financial strain and depression due to patient forgetfulness, detrimental sleep patterns, and significant loss of household income from competing caregiver demands, typically in a backdrop of limited ability to psychologically and physically access organized assistance.

Variance in the prevalence of side-effects of beta-blocker, ACEI/ARB and statin medications according to socio-demographic issues and genetics also likely contributes to differences in medication adherence. For example, blacks and particularly older black women experience more cough and angioedema from ACEI/ARBs\textsuperscript{3-4}. Similarly, although the differential side-effect profile for statins remains controversial, data about increased risk of diabetes with statin exposure in women\textsuperscript{5}, cognitive impairment with statin use in a cohort of subjects from the stroke belt that oversampled for blacks\textsuperscript{6}, and the potential higher allele frequency related to the DR11 antigen linked to statin myopathy in black patients\textsuperscript{7} need further investigation. Indeed, such information may pattern patient and provider beliefs about medication benefit versus risk in a manner that affects adherence. Interestingly, an analysis of the impact of exposure of evidence based pharmacotherapy after acute MI in older Medicare beneficiaries noted mortality benefit was most impressive for statins followed by ACEI/ARBs,
clopidogrel and beta-blockers respectively\textsuperscript{8}. Interestingly, in this paper, statin use was generally higher than ACEI/ARB use, whereas beta-blockers had the highest penetration possibly due to longer provider acquaintance with this drug class.

Structural factors including accessibility of transportation, pharmacy location, neighborhood safety, perceived discrimination and institutional attributes of health care entities/provider centers that affect communication quality between elderly minority/female patients and their providers also affects medication adherence. In a study by Kripalani S et al, transportation, counseling about medications and pharmacy wait times were cited as major additional barriers besides cost in filling prescriptions\textsuperscript{9}.

In conclusion, so how do we cross the threshold of non-adherence for post-MI Medicare D patients? Upstream approaches might include a combination of targeted self-management programs, and tailored CVD management neighborhood based programs to serve as an extension of the traditional provider based health system. The need for this type of combined approach is evident from findings in this manuscript indicating that initiation of secondary prevention therapy, albeit still sub-optimal was non-differential by race/ethnicity or gender. Additionally, follow-up with a cardiologist, primary care physician and out of pocket medication costs did not significantly impact differential adherence. Furthermore, because health literacy is a key mediator of the intersection of race/ethnicity and adherence\textsuperscript{10}, successful communication between provider teams and elderly patients/advocates is a powerful component of tailored disease management programs. In the case of post-MI patients, such programs could rely on a derived, tested algorithmic approach to continuous, long-term post MI care, akin to the door-to-needle in-hospital approach to MI treatment. Along with the latter, it is imperative that long-term approach to care incorporate psychological, social and structural need assessments that focus on
the patient and family/community centered cardiovascular care models. Undeniably, it remains fairly obvious that despite major advancements in drug therapies and implementation of evidence-based post MI management strategies, mortality from MI remains highest in blacks and among women highlighting the need to delve deeper into unique attributes that define the lives of these demographics.

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**References:**


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