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Mapping the Gaps: Gender Differences in Preventive Cardiovascular Care among Managed Care Members in Four Metropolitan Areas

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A B S T R A C T

Background: Prior research documents gender gaps in cardiovascular risk management, with women receiving poorer quality routine care on average, even in managed care systems. Although population health management tools and quality improvement efforts have led to better overall care quality and narrowing of racial/ethnic gaps for a variety of measures, we sought to quantify persistent gender gaps in cardiovascular risk management and to assess the performance of routinely used commercial population health management tools in helping systems narrow gender gaps.
Methods: Using 2013 through 2014 claims and enrollment data from more than 1 million members of a large national health insurance plan, we assessed performance on seven evidence-based quality measures for the management of coronary artery disease and diabetes mellitus, a cardiac risk factor, across and within four metropolitan areas. We used logistic regression to adjust for region, demographics, and risk factors commonly tracked in population health management tools.
Findings: Low-density lipoprotein (LDL) cholesterol control (LDL $<$ 100 mg/dL) rates were 5 and 15 percentage points lower for women than men with diabetes mellitus ($p < .0001$), and coronary artery disease ($p < .0001$), respectively. Adjusted analyses showed women were more likely to have gaps in LDL control with an odds ratio of 1.31 (95% confidence interval, 1.27–1.38) in diabetes mellitus and 1.88 (95% confidence interval, 1.65–2.10) in coronary artery disease.
Conclusions: Given our findings that gender gaps persist across both clinical and geographic variation, we identified additional steps health plans can take to reduce disparities. For measures where gaps have been consistently identified, we recommend that gender-stratified quality reporting and analysis be used to complement widely used algorithms to identify individuals with unmet needs for referral to population health and wellness behavior support programs.

Gender differences in quality of care in the management of cardiovascular disease (CVD) and diabetes, a major CVD risk factor, are well documented (Bird et al., 2007; Buja et al., 2014; Chou, Scholle, et al., 2007; Chou, Wong, et al., 2007; Larkin et al., 2010; Li et al., 2016; Lucas, DeLorenzo, Siewers, & Wennberg, 2006; Rathore et al., 2000; Tabenkin et al., 2010; Vaccarino, Krumholz, Yarzebski, Gore, & Goldberg, 2001) despite CVD being the leading cause of death for both women and men in the United States (Centers for Disease Control and Prevention, National Center for Health & Statistics, 2015). The disparity in women's CVD care runs counter to findings among other diseases in which women traditionally obtain better care than men, a phenomenon commonly attributed to greater health seeking behavior among women (Asch et al., 2006).

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Improvements in population health management tools and quality improvement efforts to narrow gaps will rely on the performance of routinely used population health management tools.

A number of studies have assessed gender differences in cardiovascular care screening for cardiac risk factors, treatment with medications, and control of risk factors (Bird et al., 2007; Bird, Fremont, & Hanson, 2014; Chou, Scholle, et al., 2007; Chou, Wong, et al., 2007; Ferrara et al., 2008; Gouni-Berthold, Berthold, Mantzoros, Bohm, & Krone, 2008; Kautzky-Willer et al., 2010; Magee et al., 2015; Ruckert et al., 2012; Schultz, O'Donnell, McDonough, Sasane, & Meyer, 2005; Vimalananda, Miller, Palnati, Christiansen, & Fincke, 2011). Past studies indicate that women generally receive fewer preventive cardiovascular services compared with men (Correa-de-Araujo, McDermott, & Moy, 2006), and that related conditions such as diabetes are often suboptimally managed in practice (Berlowitz et al., 1998; Hyman & Pavlik, 2001; Institute of Medicine Committee on Quality of Health Care in America, 2001; Larkin et al., 2010; National Committee for Quality Assurance [NCQA], 2015; Tabenkin et al., 2010). Yet evidence of women's higher risk of microvascular disease (Bairey Merz et al., 2006), and the greater impact of diabetes on risk of coronary death (Lee, Cheung, Cape, & Zinman, 2000; Legato, 2000; Liao et al., 1993), as well as gender differences in surgical outcomes, suggest the need to improve quality of care for CVD management and risk reduction among women in ambulatory practice (Mehta et al., 2016). Moreover, recent research suggests that, even with similar clinical care, women obtain poorer outcomes and may need more aggressive treatment (Magee et al., 2015).

Health plans and provider groups typically assess preventive care services using standardized evidence-based medicine (EBM) measures, such as the NCQA's HEDIS scores (Hyman & Pavlik, 2001; NCQA, 2015). These quality measures assess the percentage of patients without contraindications who are receiving indicated care in areas of clinical agreement. Despite growing evidence of gender differences in cardiovascular care, most health plans have not historically stratified quality of care measures by gender, nor are they required to do so by organizations monitoring quality of care such as the NCQA or the Centers for Medicare and Medicaid Services (CMS). More recently, the CMS Office of Minority Health and RAND Corporation (2017) published a report on *Gender Disparities in Health Care in Medicare Advantage*, reflecting increased interest in transparency in their routine reporting on the medical care received by Medicare beneficiaries.

Managed care plans and large physician provider groups now routinely use sophisticated population health management tools designed to help health care systems improve outcomes and consequent scores on evidence-based quality measures. These tools come in a variety of forms, but the most common monitor and apply algorithms to information from medical claims data, and in some cases electronic medical records, to identify individuals or subgroups of patients who have chronic conditions and may benefit from additional clinical support from the plan or physician group. For example, a plan member with coronary artery disease (CAD) and apparent gaps in care, such as poorly controlled low-density lipoprotein (LDL) cholesterol and/or no recent laboratory tests or visits with their provider, may receive reminders on being better connected with providers to support condition management. These reminders encourage the plan member to have relevant diagnostic tests and/or to support them in taking their medications properly. These members may also be offered educational materials or personal coaching related to their condition, making healthy lifestyle changes, or overcoming related challenges.

Ideally, population health tools and related support services not only help to ensure that members have good long-term outcomes (e.g., no heart attacks or strokes) or that plans and providers perform well on quality scores, but also that members receive needed support well before they enter a danger zone and require an emergency department visit or hospitalization. Chronically ill members who are hospitalized or visit the emergency department frequently may be flagged by some population health tools. However, these individuals are considered acutely ill or very high risk, and their care is typically managed by crisis management services, such as case management; they are not the focus of this article.

Our goal in this study was to examine whether gender differences in routine aspects of care and outcomes persist and whether commonly used population health management risk tools address men's and women's differential risk of not receiving evidence-based care. To address these questions, we assessed gender differences in quality of care using EBM performance rates on seven HEDIS-like measures among plan members with CAD and those with diabetes mellitus (DM) from four large metropolitan areas. We also assessed whether any gaps in care were explained by demographics, disease severity, or population health management tools.

Methods

Data

We examined 1 year (2013–2014) of medical and pharmacy claim, laboratory results, and enrollment data from one national health plan for 78,529 commercial health plan members with DM and 27,918 with CAD drawn from a population of 1,029,346 members across four metropolitan areas (Atlanta, Georgia; Houston, Texas; New York City/Northern New Jersey; and Southern California). The project was approved by the RAND institutional review board.

Measures

Age was measured in years. Race/ethnicity was categorized as Asian, non-Hispanic Black, Hispanic, non-Hispanic White, or other, which included those for whom race/ethnicity data were missing.

Quality of care measures assess whether the care provided adheres to evidence based standards of care. Specifically, we examined two screening measures (glycosylated hemoglobin [HbA1c] test in last 12 months, LDL cholesterol test within the last 12 months), two intermediate outcomes (most recent HbA1c control [HbA1c $<$ 8%], LDL control (LDL $<$ 100 mg/dL), and one combined outcome (LDL control $<$ 100 mg/dL or statin use). The HbA1c measures were examined only for those with DM and the combined outcome was examined only for those with CAD. LDL screening and control measures were examined separately for both those with DM and those with CAD. We drew on NCQA HEDIS specifications to compute these measures.

We used Optum's EBM Symmetry Connect software (Optum Insight, 2012), a decision support and population health management software that scans medical and pharmacy claim, laboratory results, and enrollment data to identify members eligible for the selected EBM measures, and flags those who did and did