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Gender Differences in Physician Service Provision Using Medicare Claims Data

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Abstract

Objective: To determine differences in the provision of Medicare services based on physician gender in the United States.

Patients and Methods: Participants included all 2013 Medicare fee-for-service physicians and their patients, a population that is predominantly older than 65 years. The 2013 Medicare Provider Utilization and Payment Data for services rendered between January 1, 2013, and December 31, 2013, were combined with the 2015 Physician Compare National Downloadable files and 2015 Berenson-Eggers Type of Service classification files. Total fee-for-service Medicare payments and Healthcare Common Procedure Coding System procedure codes for all fee-for-service beneficiaries were aggregated according to physician gender, specialty, years since medical school graduation, and type of service classifications.

Results: Excluding drug reimbursement, the mean total Medicare payments per female physician, compared with those for male physicians, were 41% in surgical specialties, 72% in hospital-based specialties, and 55% across all specialties ($P<.001$). The mean overall number of unique beneficiary visits per female physician was 59% of that for male physicians ($P<.001$). By using the Berenson-Eggers Type of Service classification, procedures and other services by female physicians were of 54% lower overall average intensity (allowed payments/number of unique patients) compared with those of male physicians. These differences persisted irrespective of years since medical school graduation ($P<.001$).

Conclusion: Female physicians had smaller average total Medicare payments and fewer unique beneficiary visits than male physicians in the care of fee-for-service Medicare beneficiaries in 2013. The differences persisted across specialty types and years in practice. These data can identify variation but cannot determine causation or explain the reasons behind gender differences. These findings suggest, but do not prove, that female physician Medicare payments are lower due to different practice patterns, consisting of fewer patients cared for and lower intensity of care.

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US medical school class sizes are approaching sex parity, with women representing 48% of matriculating medical students in 2014.[1] Despite the attention given to gender differences in medical school class size, female physicians lag behind male physicians in compensation, leadership positions, and academic promotion.[2-4] Gender disparities have been explained by observations that, compared with men, women are more likely to work part-time,[5-7] shoulder a greater proportion of family responsibilities, receive gender-discordant mentoring and role modeling,[8,9] and perceive gender-related obstacles to advancement in the work environment.[10-13] Gender differences in the nature and scope of clinical productivity are less clear.[14] The study of gender differences in employment opportunities, compensation, and productivity is not unique to medicine and has contextual similarities in other professional fields.[15-17]

The Centers for Medicare & Medicaid Services (CMS) recently released national public data files for 2013. These data detail the volume and nature of clinical services provided in the fee-for-service (FFS) Medicare program. The information serves as the only publicly accessible, nationwide repository of information documenting payments and patient volumes provided by US physicians in the care of FFS Medicare beneficiaries. Medical care that is not well represented in the older than 65 years Medicare-reimbursed age group (ie,

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pediatrics or cosmetic surgery) would be outside the scope of analysis of this otherwise comprehensive data set.

Discussions of gender-based salary differences among various professionals, including physicians, are becoming prominent and frequent.[3,18,19] The CMS data set is unique in that there are no gender differences in the per-service reimbursement rates paid by Medicare at similar practice locations. Thus, variation in total Medicare-allowed payments represent differences in underlying volume and service mix disparities, with the exception of minor geographic differences in Medicare reimbursement rates due to slight gender-based differences in practice location.

The purpose of our study was to present recent national data synthesizing male-female physician workforce patterns in the care of Medicare beneficiaries by US physicians, and to introduce to the literature the use of newly available Medicare national claims data in approaching gender workforce issues.

PATIENTS AND METHODS

Mayo Clinic Institutional Review Board approval was obtained. Three publicly available CMS databases were downloaded and analyzed by using Microsoft Excel 2013 with PowerPivot, Power View, and Power Query add-ins (Microsoft Corp).

The 2013 Medicare Provider Utilization and Payment Data: Physician and Other Supplier Public Use File[20] contains entries summarizing FFS Medicare Part B care provided in the United States aggregated by unique provider and Healthcare Common Procedure Coding System (HCPCS) procedure codes for services rendered between January 1, 2013, and December 31, 2013. Included for each provider-HCPCS combination is the average Medicare-allowed payment, the total number of unique patients receiving a given service, provider specialty, provider gender, the total number of billable units, a flag indicating whether the HCPCS code represents reimbursement for a drug, and provider practice geographic location details. The database includes only FFS Medicare beneficiaries who are predominantly older than 65 years and excludes care alternatively provided to the 28% of Medicare beneficiaries who selected Medicare Advantage plans in 2013. In addition, the data set excludes any HCPCS code for which a given provider billed 10 or fewer patients in 2013. The total Medicare-allowed payments for a given provider and HCPCS code combination were calculated by multiplying the line service count by the average Medicare-allowed payment for each row entry. *The line service count* is defined as the number of services provided, with Medicare noting that the metrics used to count the number provided can vary from service to service. Of note, the line service counts for HCPCS services usually represent the number of service events. In some cases, such as drug reimbursement, the line service count billed units differed from the volume of clinical services provided. For example, for a particular drug, a 5 mg dose may be billed as five 1 mg line service count units for a single drug administration. Given the format of this particular data set, the calculated total Medicare-allowed payments are a better proxy for the combined volume and intensity of total services provided than a sum of the line service counts, which may be distorted by differences in billing units and service volumes for some HCPCS codes. For each provider and HCPCS code combination, the number of unique patients receiving each HCPCS service was summed for each provider. Thus, the total number of distinct patients receiving each unique HCPCS service was calculated for each physician and served as a proxy for the total volume of patients cared for by each provider. Nonphysician providers were excluded from the data analysis.

The 2015 Physician Compare National Downloadable file[21] includes demographic information for Medicare providers and is indexed by the National Provider Identifier. Duplicate entries were removed from the Physician Compare database so that each unique provider had only 1 Physician Compare entry. Included for each provider entry is a field listing the provider's medical school graduation year. By subtracting the graduation year from 2013 and adding 1 year, the number of years since medical school graduation was calculated for each of the 88% of physicians for whom the Physician Compare graduation year was populated and could be related to the main Provider Utilization database with the National Provider Identifier as an index.