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**Annual Wellness Visit Analysis**

**July 14, 2019**

**Executive Summary**

**Headline**

The total volume of annual wellness visits could be increased by implementing a quality improvement program targeting primary care practices with a high degree of variation in the percent of visits billed by provider.

**Goals of the Analysis**

* Quantify the distinct primary care practices in Delaware
* Identify the primary care practice in Delaware that performed the most annual wellness visits in 2016
* Identify actionable information that could be used by a quality improvement organization aiming to increase the number of annual wellness visits performed

**Assumptions**

* Medicare annual wellness visits (AWV) may be performed once upon enrollment and once per year for each beneficiary.
* Primary care specialties include family practice, general practice, internal medicine, geriatric medicine, and pediatric medicine.
* Although group practices may include other specialties, only aggregate and utilization data for providers with a primary care specialty were used for the analysis.
* Some providers were not associated to a group in the source data. When this occurred, the NPI was used as a proxy for group ID.
* Provider and group performance were calculated as the number of annual wellness visits performed / the total unique beneficiaries.
* It is possible that the same beneficiary received care from different providers in the same practice, therefore the denominator may be overstated at the practice level.

**Key Findings**

* There are 201 primary care practices in Delaware.
* Beebe Physician Network performed the most annual wellness visits during 2016.
* Primary care practices with moderate panel size and a high degree of variation within the annual wellness visit performance measure represent good candidates for a quality improvement program. This is because the presence of high-performing providers in a practice suggests that infrastructure exists for tracking and documenting AWV and therefore process changes could be implemented to improve performance among other practice providers. This is a better approach than targeting very low-performing practices with little variation which signifies a lack of infrastructure and physician champions.
  + The following primary care practices have a moderate panel size and the highest variation among providers with respect to the percent of annual wellness visits performed and could be therefore be considered for a quality improvement program:
    - Apogee Medical Group of Delaware PLLC
    - Mid Sussex Medical Center
    - Internal Medicine Associates
    - St. Francis Medical Center
* A 2018 article by Chung, Romanelli, Stults, and Luft suggest that drivers of AWV underutilization include larger practice size and a panel including many patients with multiple comorbidities and non-white patients.
  + A correlation analysis of the 2016 Delaware Medicare data suggests a weak (-.26) negative correlation between annual wellness visit performance and average HCC risk score as well as a weak (-.15) correlation with percentage of nonwhite patients.
  + The quality improvement program implemented at the target practices could focus on ensuring that patients with multiple comorbidities do not use problem-oriented visits for AWV services. It could also focus on improving culturally- appropriate care so that beneficiaries who are nonwhite feel comfortable participant in the health risk assessment and other components of the AWV.
* Further analysis including patient-identifiable information would improve the insights available for the quality improvement effort.

**Outputs**

* Smith\_Analytic\_Exercise\_Results.xlsx – A workbook containing answers to the 3 research questions
* Smith\_Analytic\_Exercise\_Tool.twbx – A Tableau tool for examining variation among provider practices in the AWV measure. (May be opened using [Tableau Reader](https://www.tableau.com/products/reader))
* Smith\_Analytic\_Exercise\_Data\_Preload\_Load.R – An R script used to read in raw files, explore and clean them, then load them to an AWS MySQL database
* Smith\_Analytic\_Exercise\_Queries.sql- A SQL script used to create a summary table used to calculate results
* Smith\_Analytic\_Exercise\_Results.R – An R script used to replicate sql results as a validation step and perform the analysis related to question 3

**Data Sources and References**

Open source physician group, patient mix, and utilization data for calendar year 2016:

* [Physician Compare](https://data.medicare.gov/Physician-Compare/Physician-Compare-National-Downloadable-File/mj5m-pzi6)
* [Physician Utilization and Payment Report](https://data.cms.gov/Medicare-Physician-Supplier/Medicare-Provider-Utilization-and-Payment-Data-Phy/utc4-f9xp)
* [Physician Supplier NPI Aggregate Report](https://data.cms.gov/Medicare-Physician-Supplier/Medicare-Physician-and-Other-Supplier-National-Pro/85jw-maq9)
* [Medicare Billing Rules for Annual Wellness Visit](https://www.cms.gov/Outreach-and-Education/Medicare-Learning-Network-MLN/MLNProducts/Downloads/AWV_Chart_ICN905706.pdf)
* [Underutilization of the Medicare Annual Wellness Visit](https://www.sciencedirect.com/science/article/pii/S0091743518302494)