COMPLETED GRANT SYNOPSIS

Who Did What to Whom?
Estimating the Relative Contribution of Pharmacists and Primary Care Providers to Quality Measures

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Objectives

The overall goal of this project was to estimate relative contributions of primary care providers (PCPs) and pharmacists to variations in select medication-related quality measures using a novel statistical tool; the residual intraclass correlation coefficient (RICC). The objectives were to:

1. Refine a selection criteria framework for identifying medication-related measures which community pharmacists can impact;
2. Apply the selection criteria to the Merit-based Incentive Payment System (MIPS) measure set for use in the analyses; and
3. Estimate the relative contribution of pharmacies and primary care group practices to variation in attributed patients' quality measure scores

Methods

Design

Objectives 1 and 2:

- Multidisciplinary healthcare subject matter experts (SMEs) were interviewed to determine criteria that evaluate community pharmacists' ability to impact quality measures. The draft tool was then reviewed by researchers and SMEs to evaluate face validity and to make refinements.
- An iterative process was used to refine the tool by maximizing interrater reliability among two independent reviewers using a random 20% sample of the 2017 MIPS measure set. Interrater reliability was estimated using absolute agreement and kappa statistics. The tool was then applied to the full 2017 MIPS measure set by two reviewers, and interrater reliability was evaluated again.

Objective 3:

- A 2015 Medicare 20% sample was used to build selected measures from MIPS and Medicare Star Ratings. Patients were attributed to pharmacies and group practices based on prescription filling patterns and primary care spending. For each measure, at least 10 attributed patients were needed. Measures were grouped into three categories (low, moderate and high) based on the estimate likelihood of pharmacist impact derived from the tool developed in objectives 1 and 2. Measures from low and moderate categories acted as a falsification test on results from the high impact category.
- The residual intraclass correlation coefficient (RICC) was used to estimate of the share of total variation in a quality measure due to the site where a patient received care. Hierarchical logistic regression models were used to estimate raw and covariate-adjusted RICC values for pharmacies and primary care group practices. The pharmacy RICC was divided by the group practice RICC to yield an RICC ratio, which is an estimate of relative impact of pharmacists and primary care providers on quality measures.

Results

- The measure selection tool was comprised of five criteria to assess quality measures for community pharmacist impact potential. All criteria used a dichotomous scale, and the summed scores were used to categorize pharmacist impact as "high" (4-5), "moderate" (2-3), or "low" (0-1). Kappa statistics ranged from substantial (≥0.6) to almost perfect (≥0.9) for individual criterion and pharmacist impact categorization.
- There were 2,530,062 Medicare enrollees who met all eligibility criteria for this study. After applying measure-specific eligibility criteria and minimum denominator requirements, the number of eligible patients per measure ranged from 179,430 for Adult Sinusitis to 2,226,129 for High Risk Medication Use in Elderly Patients (HRM).
- The RICC ratio calculation found the strongest pharmacy effect for the three medication adherence measures, followed by HRM. Results suggest that pharmacists have 40% greater impact on adherence to renin-angiotensin system antagonists and non-insulin diabetes medications than do primary care providers. Impact of pharmacists on statin adherence is 20% higher, and HRM is similar with primary care providers having a 5% greater impact than pharmacists. As expected, results from Low and

Moderate impact measures strongly favor primary care providers. This suggests that the impact observed on medication adherence is likely to be true, and not an artefact of the data or the analytical technique.

Conclusion

The measure selection tool is a reliable instrument for characterizing quality measures to which community pharmacists may have a high, moderate, or low impact. Furthermore, the tool can be used to support innovative team-based care and enhance value-based contracting.

When evaluating the relative magnitude of pharmacist impact on select quality measures, this study found strong evidence for the impact of pharmacists on medication adherence as a part of normal practice. There is also evidence for pharmacist impact on HRM, which pharmacists and primary care providers appeared to impact almost equally. Falsification testing using measures with low and moderate predicted pharmacist impact confirmed that there was substantial variation across measures tested, suggesting that the adherence results are not an artefact of the data or the methodology. These results support contracts from payers and primary care group practices seeking to engage pharmacists in supporting adherence and HRM measures, and future research is needed to expand this analysis to additional populations and more quality measures.