

Hypertension, Cholesterol and Diabetes Medication Adherence, Health Care Utilization and Expenditure in a Medicare Supplemental Sample

The following is a synopsis of “Hypertension, Cholesterol and Diabetes Medication Adherence, Health Care Utilization and Expenditure in a Medicare Supplemental Sample” published in September 2021 in *Medicine*.



What is already known on this topic?

The paper indicates that in 2018, annual health care costs in the US amounted to \$3.6 trillion.¹ Nevertheless, more recent data indicates that the cost continue to increase with costs estimated at \$3.8 trillion in 2019.^{2,3} Chronic diseases, such as hypertension and diabetes, are major contributors to these annual health care costs.³ The management of chronic diseases often require long term prescribed medication therapy and adherence to these medication regimens is often poor.⁴ With 60% of US adults living with at least one chronic disease and 40% living with two or more chronic diseases, adherence to these medications is of the utmost importance.³

Medication adherence is commonly measured using continuous proportion of days covered (PDC). A patient is considered adherent if the PDC is greater than or equal to 80%, meaning they had access to medication at least 80% of the total days in the treatment period.⁵ Previous studies have shown that medication nonadherence is associated with higher health care costs. For example, one study showed that if 25% of Medicare beneficiaries who are nonadherent to antihypertensive medications became adherent, Medicare could potentially save \$13.7 billion annually due to averted emergency department visits and inpatient hospital stays.⁶

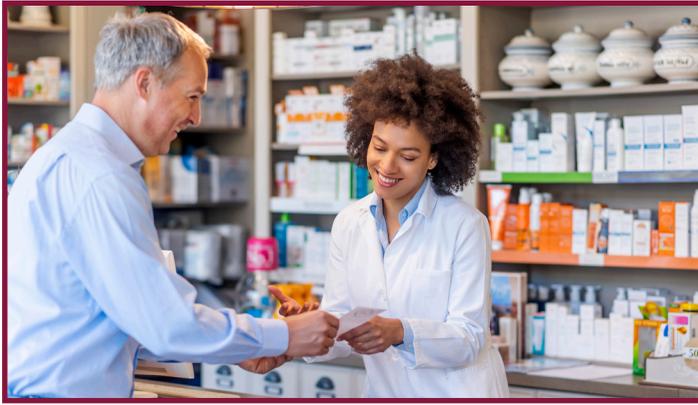
What is added by this article?

This study assessed the association between medication adherence of three cohort groups, constructed using the Pharmacy Quality Alliance adherence measure specifications which classified patients into cohorts based on receipt of a medication from three classes and subsequent health care costs in Medicare supplemental and Part D recipients over a one-year timeframe.

Approximately 4.3 million individuals included had a prescription drug claim spanning from January 1, 2009 to December 31, 2015 for any Renin Angiotensin System (RAS) antagonists - a class of medication often used in hypertension - statins, and noninsulin diabetes medications. Each cohort compared adherent (defined as PDC greater than or equal to 80%) and nonadherent groups (defined as PDC less than 80%) in both health care utilization and costs. The researchers found that as adherence increases, prescription drug costs may increase. They also found adherent groups were associated with higher prescription drug costs. However, the adherent groups for each of the three disease states were found to have incurred less health care visits and overall cost in one year.

While the adherent groups were found to be associated with higher prescription drug costs, the magnitude is unsubstantial in comparison to the health care cost savings. The study also calculated the average incremental cost per member per month (PMPM) to provide a monetary value to adherence. It was found that there was an overall health care cost savings with a PMPM of -\$324.53, -\$188.62, and -\$152.19 for the RAS antagonists, statins, and noninsulin diabetes medications respectively. This adds to the evidence that poor adherence is associated with higher health care costs.





What are the implications of these findings?

Poor adherence to medications for chronic diseases has been shown to be associated with higher health care costs and more health care utilization. With 60% of US adults living with at least one chronic disease, improving adherence is an area that needs support from public health practitioners.³ Public health practitioners could include initiatives to improve medication adherence in chronic disease programs. Additionally, state and local public health departments could use data, including GIS mapping, to identify areas with high rates of nonadherence as well as partner with local pharmacists to provide services in those areas.

There are many factors that may lead to nonadherence, therefore strategies to address nonadherence may need to be tailored to the patient or community. The Community Preventive Services Task Force recommends tailored pharmacy-based interventions to improve medication adherence.⁷ Pharmacists can provide education on the importance of adherence to medications, help set expectations related to health benefits of prescribed medications and use motivational interviewing to help improve adherence. Improving adherence to medications used in chronic disease management may decrease avoidable health care utilization and costs.

Resources

Centers for Disease Control and Prevention:
[Tailored Pharmacy-Based Interventions to Improve Medication Adherence | cdc.gov](#)

Centers for Disease Control and Prevention:
[GIS and Public Health at CDC | cdc.gov](#)

Pharmacy Quality Alliance:
<https://www.pqaalliance.org/adherence-measures>

References

1. Centers for Medicare & Medicaid Services. [National Health Expenditure Data, Historical](#). December 16, 2020.
2. Martin AB, Hartman M, Lassman D, Catlin A. [National Health Care Spending In 2019: Steady Growth For The Fourth Consecutive Year](#). Health Aff. 2020;40(1):1-11.
3. Buttorff C, Ruder T, Bauman M. [Multiple Chronic Conditions in the United States](#). Santa Monica, CA: Rand Corp.; 2017.
4. Sokol MC, McGuigan KA, Verbrugge RR, Epstein RS. Impact of medication adherence on hospitalization risk and healthcare cost. Med Care. 2005 Jun;43(6):521-30. doi: 10.1097/01.mlr.0000163641.86870.af. PMID: 15908846.
5. Pharmacy Quality Alliance. [PQA has developed three new pharmacy performance measures, comments sought](#). December 18, 2019.
6. Lloyd JT, Maresh S, Powers CA, Shrank WH, Alley DE. [How Much Does Medication Nonadherence Cost the Medicare Fee-for-Service Program?](#) Med Care. 2019 Mar;57(3):218-224. doi: 10.1097/MLR.0000000000001067. PMID: 30676355.
7. The Community Guide. (2019). [Cardiovascular disease: tailored pharmacy-based interventions to improve medication adherence](#).

Citation

Campbell PJ, Axon DR, Taylor AM, Smith K, Pickering M, Black H, Warholak T, Chinthammit C. Hypertension, cholesterol and diabetes medication adherence, health care utilization and expenditure in a Medicare Supplemental sample. Medicine (Baltimore). 2021 Sep 3;100(35):e27143. doi: 10.1097/MD.00000000000027143. PMID: 34477169; PMCID: PMC8416010.



U.S. Department of Health and Human Services
Centers for Disease Control and Prevention