

# Cost Analysis of the Chronic Disease Self-Management Program

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*A comparison of health care costs  
among Medicaid members  
with chronic health conditions*



**COLORADO**  
Office of Community  
Access & Independence  
Division of Aging & Adult Services

# **Cost Analysis Summary: Medicaid Member Participation in The Chronic Disease Self-Management Program**

## **Overview**

In 2016, the Colorado Department of Human Services contracted with the Colorado Department of Health Care Policy and Financing to conduct an evaluation of the costs and service utilization of 100 adult Medicaid members who had taken a Chronic Disease Self-Management Program (CDSMP) class (the intervention group) compared to other Medicaid members with the same conditions who did not take a CDSMP class (baseline group).

The baseline population consisted of all clients who fit the same demographic criteria as the intervention group:

- Were continuously eligible for Medicaid from January 1, 2013, to December 31, 2015, the span of time over which intervention clients' data were measured;
- Were 22 years or older as of the end of the fiscal year;
- Had at least one of the following chronic conditions:
  - Asthma;
  - Chronic obstructive pulmonary disease;
  - Diabetes;
  - Heart disease;
  - Hypertension and/or;
  - Kidney disease.
- Did not have a diagnosis of schizophrenia;
- Were not living or in a nursing facility for more than 100 days during the fiscal year;
- Were not in a hospice at any time during the fiscal year; and
- Were not enrolled in an HMO during the fiscal year.

Medicaid costs and service utilization were tracked and averaged for two six-month periods for each group. For the group who did not take a class, costs were averaged for two sequential six-month periods. For the group who took a class, the first period was the six months prior to starting a class; the second period was the six months after completion of the class. The specific start and end dates varied by member, but all were between January 1, 2013, and December 31, 2015.

The study tracked the following service types:

- Inpatient days
- Outpatient visits
- Emergency room visits
- Physician visits

## **Definitions of Terms**

The following are the definitions for the service types used for this analysis.

**Inpatient stays:** Inpatient stays are hospital visits of 24 hours or more.

**Outpatient visits:** Outpatient visits refer to a wide range of services, including hospital stays under 24 hours and visits to emergency rooms, Federally Qualified Health Centers (FQHCs), Rural Health Centers, outpatient surgery centers, urgent care facilities, etc.

**Emergency room visits:** For purposes of this study, emergency room visits are defined according to certain revenue and procedure codes. ER visits typically involve emergency room/department evaluation and treatment of an injury, sudden illness or illness that quickly gets much worse.

**Physician visits:** Physician visits occur when a member goes directly to a provider or clinic for services, including primary care visits, specialty visits, home health, dental, labs, etc.

## **Explanation of Analysis**

Below is an explanation of the per-member-per-month (PMPM) cost data used for this analysis.

For members who did not take a chronic disease self-management class (baseline group):

- PMPM costs for the first six months are the average per-member-per-month costs for the first six months of a 12-month period.
- PMPM costs for the second six months are the average per-member-per-month costs for the second six months of a 12-month period.

For members who took a chronic disease self-management class (intervention group):

- PMPM costs six months before CDSMP are the average per-member-per-month costs for the six months before members started a CDSMP class.
- PMPM costs six months after CDSMP are the average per-member-per-month costs for the six months after members completed a CDSMP class.

The following are the PMPM calculations used for this analysis:

- PMPM costs were calculated as follows: total cost/total members/total months evaluated.
- Claims in each service type were pulled for each client and aggregated over each pre/post period.

## **Results Highlights**

Pre/post costs and utilization were compared for each service type within the baseline and intervention group. The differences in costs were as follows:

- There was a 16% difference (reduction) in pre/post inpatient costs among the group who took a class compared to those who did not.

- There was a 17% difference (reduction) in pre/post outpatient visit costs among the group who took a class compared to those who did not.
- There was a 13% difference (reduction) in pre/post emergency room costs among the group who took a class compared to those who did not.
- There was a 16% difference (increase) in pre/post physician visit costs among the group who took a class compared to those who did not.\*

\* One possible explanation for the increase in costs of physician visits may be that after taking a class, individuals were more likely to see their physicians earlier in their disease process rather than later, making it possible to treat the condition in outpatient settings rather than in more costly settings, such as hospitals and emergency rooms.

Compared to changes in costs, there was very little pre/post change in any service utilization type.

Statistical significance for these results could not be confirmed based on the limited intervention group of 100 class participants.

### **Study Limitations**

The focus of the study was the relative pre/post change between individuals who took a class compared to those who did not. The results, which are based on actual Medicaid claims data, indicate a potential for cost reductions in inpatient, outpatient and emergency room visits among individuals who complete CDSMP classes. However, statistical significance of these results could not be determined due to the small size of the intervention group ( $n = 100$ ).

Further, there were differences between the baseline and intervention groups in the average claims during the first six-month periods, with some “pre” costs being higher among individuals who chose to take a CDSMP class, and others being higher among those who did not. Although the reasons for these differences cannot be confirmed, it may be that individuals who chose to enroll in a CDSMP class had different profiles or motivations from those who did not.

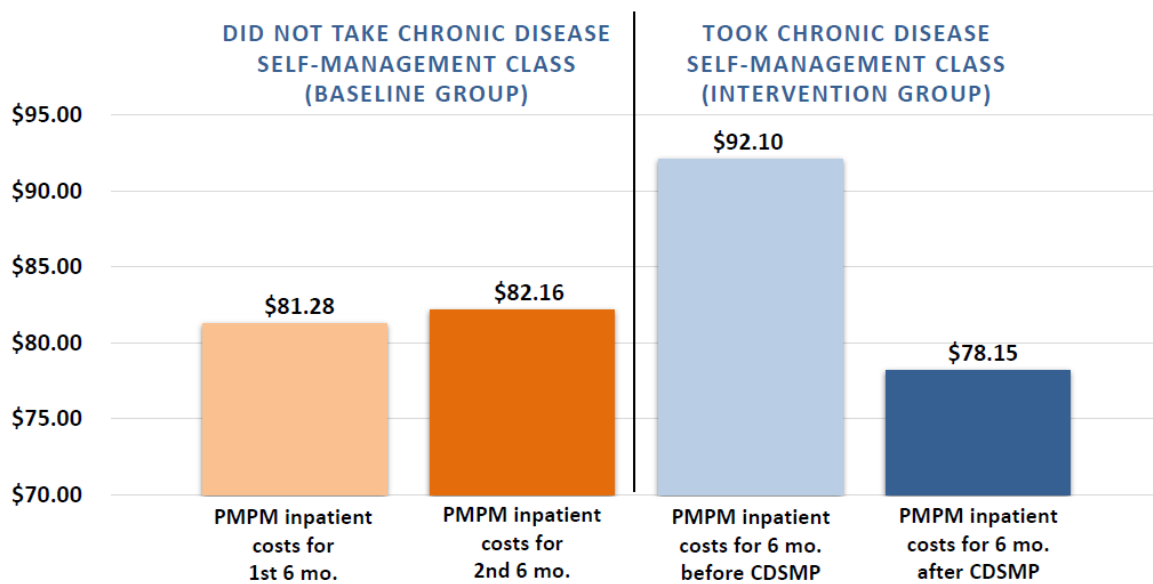
Also, while the intervention group was composed of 100 Medicaid members with chronic conditions, the baseline group was composed of all other Medicaid members with chronic health conditions, which is not ideal for a matched comparison. Similarly, members from the two groups were not matched on other demographic variables such as gender, other illnesses and average claims costs for the first six-months.

In addition, with all individuals in the study being Medicaid members, it is not possible to determine if the results would generalize to other populations. For these reasons, similar results cannot be guaranteed.

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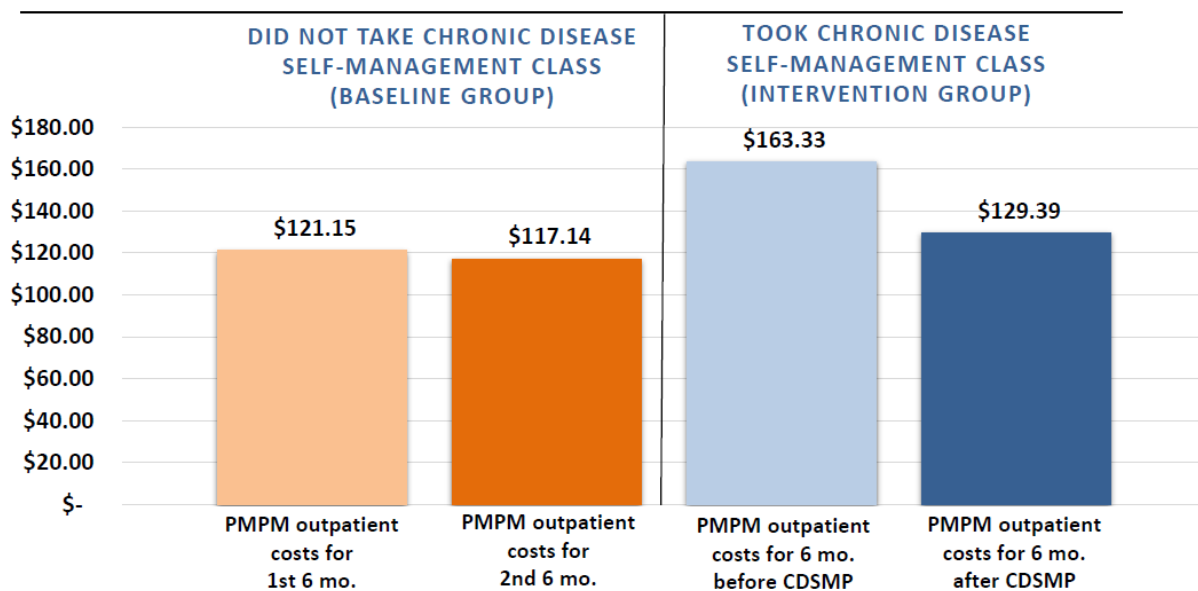
*This study was supported by a cooperative agreement (No. 90CS0047-02-00) from the Administration on Aging (AoA), Administration for Community Living (ACL), U.S. Department of Health and Human Services (DHHS). Grantees carrying out projects under government sponsorship are encouraged to express freely their findings and conclusions. Therefore, points of view or opinions do not necessarily represent official AoA, ACL or DHHS policy.*

**Average Cost of Inpatient Utilization (Per Member Per Month/PMPM)  
For Colorado Medicaid Members**



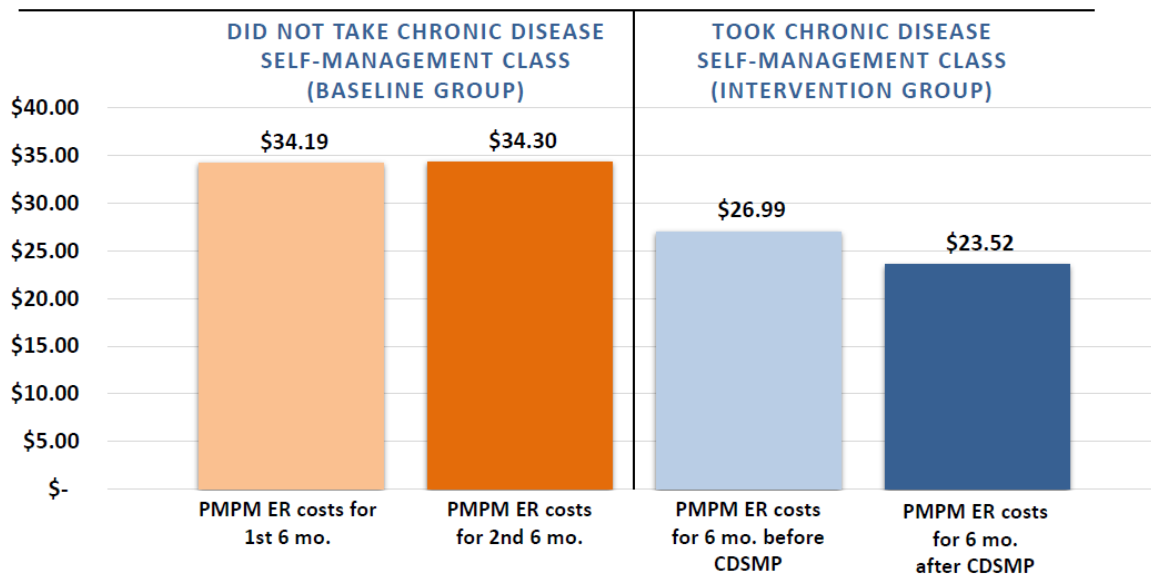
There was a 16% difference (reduction) in pre/post inpatient costs for the group who took a class compared to those who did not. (Statistical significance could not be determined.)

**Average Cost of Outpatient Utilization (Per Member Per Month/PMPM)  
For Colorado Medicaid Members  
With at Least One Chronic Condition**



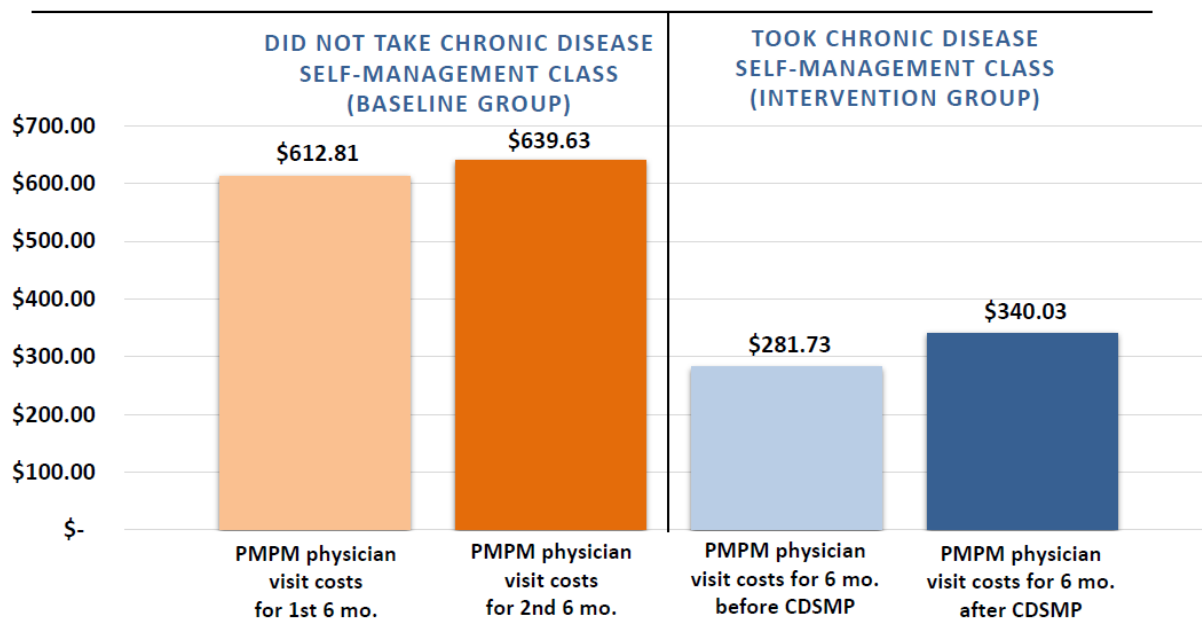
There was a 17% difference (reduction) in pre/post outpatient visit costs for the group who took a class compared to those who did not. (Statistical significance could not be determined.)

**Average Cost of Emergency Room Utilization (Per Member Per Month/PMPM)  
For Colorado Medicaid Members  
With at Least One Chronic Condition**



There was a 13% difference (reduction) in pre/post emergency room costs for the group who took a class compared to those who did not. (Statistical significance could not be determined.)

**Average Cost of Physician Visit Utilization (Per Member Per Month/PMPM)  
For Colorado Medicaid Members  
With at Least One Chronic Condition**



There was a 16% difference (increase) in pre/post physician visit costs for the group who took a class compared to those who did not. (Statistical significance could not be determined.) \* One possible explanation for the increase in physician visit costs may be that after taking a class, individuals were more likely to see their physicians earlier in the disease process rather than later, making it possible to treat the condition in outpatient settings rather than in more costly settings.