

Treated Chronic Disease Prevalence and Costs in Minnesota

ESTIMATED COSTS FOR 2009 AND 2015

PROJECTED COSTS FOR 2015 THROUGH 2025

Introduction

Chronic disease places enormous burdens on individuals, families, communities, and governments, and its burden is unevenly distributed across populations and areas of the state. To better understand the impact of chronic disease on health and wellness in Minnesota, the potential fiscal opportunity associated with reducing the prevalence and associated risk factors, and to assess Minnesota's current efforts towards those goals, the Legislature has directed MDH to annually report on health care spending *directly related* to a specific set of chronic conditions and risk factors.

Specifically, the Minnesota Legislature directed MDH to:¹

1. Identify health care spending directly attributable to diabetes, hypertension, dementia, obesity, and smoking, and all chronic disease costs for those age 60 or older;
2. Project future levels of condition-attributable spending, accounting for demographic and price changes;
3. Compare the latest actual, observable health care spending for the conditions and risk factors with the projection baseline; and
4. Estimate the share of the difference between actual and projected spending attributable to state-administered programs.

As with the first report,² this second-year examination³ brings together analysis of about half a dozen data sources, research evidence from more than 50 studies, and expertise from analysts at the Minnesota Department of Health (MDH) and Mathematica Policy Research, Inc., the

¹ Minnesota Statutes, Chapter 62U.10, subd. 6 to 8.

² Minnesota Department of Health (2017) "[Treated Chronic Disease Costs in Minnesota - a Look Back and a Look Forward](http://www.health.state.mn.us/data/economics/docs/chronicdisease.pdf)", Legislative Report; www.health.state.mn.us/data/economics/docs/chronicdisease.pdf

³ As requested by Minnesota Statute 3.197: This report cost approximately \$321,000 to prepare, including efforts by an analytic vendor and staff time.

state’s analytics vendor for this project, to help us understand trends in treated disease prevalence and how they compare to earlier expectations.

Because of the complexity of the task, however, this research has a number of limitations which were sketched out in detail in the first report. In the conclusion to this issue brief, we share ideas for addressing some of the limitations by periodically refocusing the required analysis to address specific additional knowledge gaps in our understanding of the impact and burden of chronic disease.

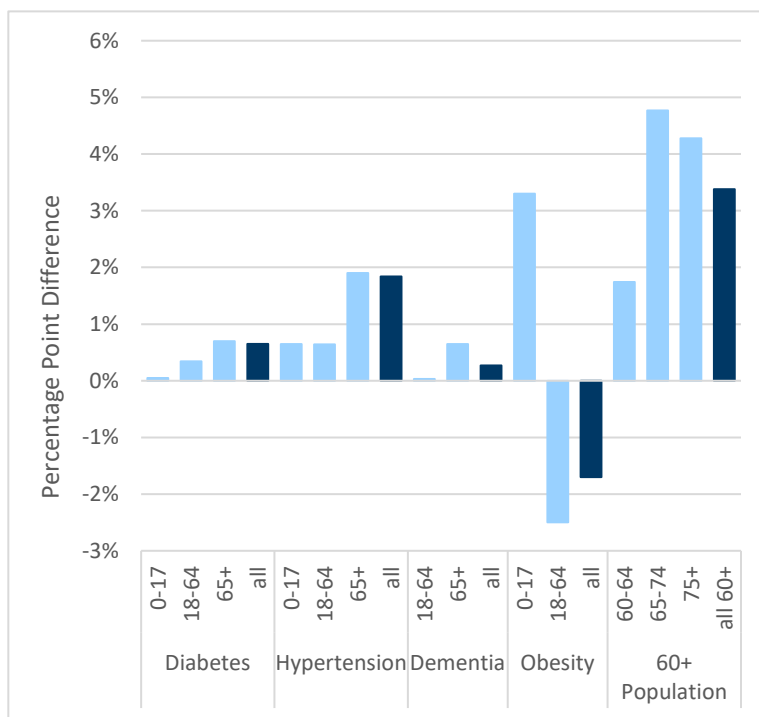
Key Findings

In 2015, roughly \$11.8 billion (about 5 percent more than in 2014) was spent on health care to treat and manage certain chronic conditions and smoking exposure: These costs are specific to care for four chronic conditions and smoking exposure for Minnesotans under the age of 60 and for all conditions among those aged 60 or older.

Treated prevalence increased between 2009 and 2015: For all conditions analyzed except obesity, treated prevalence increased between 2009 and 2015, both in terms of the number of Minnesotans with a given chronic condition as well as the percentage of the population with a given chronic condition. The prevalence of obesity decreased slightly over this period (figure 1).

Chronic conditions are becoming increasingly prevalent among the elderly: Roughly 898,000 adults age 60 or older (about 81 percent) had at least one diagnosed chronic condition. This represents an increase from about 695,000 (about 78 percent) in 2009. Additionally, prevalence of chronic

Figure 1: Change in Treated Prevalence, by Condition and Age, 2009 to 2015⁴



⁴ The analyses pertaining to tobacco use are conducted biannually. As such, results for 2009 and 2014 are not included here.

disease increases with age among this group, with a treated prevalence of chronic disease of about 89 percent among those age 75 or older.

Overall per-person spending for individuals with chronic conditions increased between 2009 and 2015: Overall per-person spending for Minnesotans with select chronic conditions – or the average health care spending in a year for individuals with a certain condition – remained higher than that of the population as a whole (by more than a factor of two), and increased between 2009 and 2015 for all chronic condition categories.

Disease-attributable per-person spending for Minnesotans with chronic conditions remained largely flat or decreased: Condition-attributable per-person spending – or average health care spending per-person in a given year that is specific to a certain condition – decreased for all condition-specific groups by 2015; chronic-disease attributable spending for people 60 years or older largely stayed flat. The decrease in per-person attributable spending was largely driven by declines in medical services spending; for most conditions, per-person pharmacy spending rose.

This disease-attributable health care spending for all select chronic conditions and smoking exposure is projected to rise steadily over the next decade: Health care spending attributable to selected chronic conditions is projected to grow between 26 percent (obesity) to 70 percent (all chronic conditions, age 60+) between 2015 and 2025.

Overall actual disease attributable spending in 2015 was slightly below baseline projections. However, for state-administered programs, actual spending *exceeded* projections: With one exception, actual disease attributable spending – or health care spending directly related to a certain condition for all people with the condition – was in 2015 about \$22.1 million below the 2009 baseline projections across all conditions and population groups. However, most of the net difference between actual and projected spending occurred among people ages 60 years or older, with spending for Minnesotans under the age of 60 actually exceeding projections. Because people in state-administered programs were largely younger than 60 years, disease attributable spending for state-administered programs was above projections. As such, the criteria in state law for a transfer between the General and Health Care Access Funds are not met.⁵

⁵ Minnesota Statutes, Chapter 62U.10, subd. 8.

Diabetes-Attributable Health Care Spending (All Ages)

In 2015, roughly 343,000 Minnesotans of all ages—about 6 percent of the population—received health care services related to the treatment of diabetes, an increase of about 51,000 from 2009 (292,000 Minnesotans, 6 percent of the population).

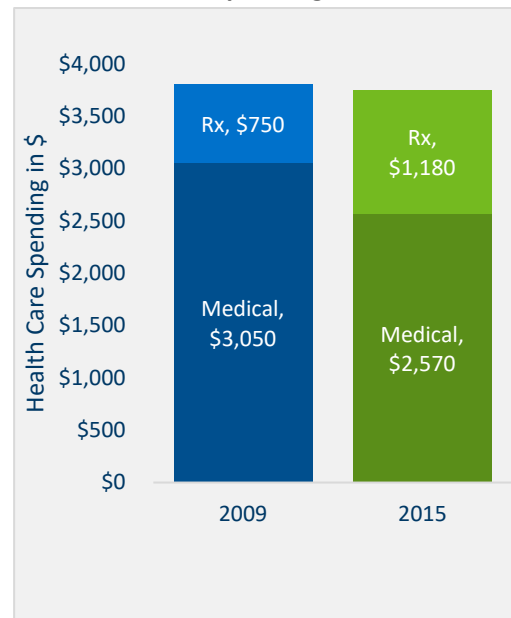
Per-person health care spending for Minnesotans treated for diabetes was about 3.2 times as high as than per-person spending for all Minnesotans (\$19,510 vs. \$6,120 respectively, as seen in figure 2). Roughly 19.2 percent of the spending for people with diabetes in 2015, or \$3,750 per person, was directly attributable or related to the treatment of the disease.

As seen in figure 3, medical services spending accounted for most (about 68 percent) of diabetes-attributable spending (\$2,570 per person), with pharmacy spending making up the remaining 32 percent (\$1,180).

Figure 2: Per-Person Health Care Spending Among All Minnesotans and People with Diabetes



Figure 3: Per-Person Spending Associated with Diabetes, by Type of Spending



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Hypertension-Attributable Health Care Spending (All Ages)

In 2015, roughly 1.062 million Minnesotans of all ages—about 20 percent of the population—received health care services related to the treatment of hypertension or high blood pressure, an increase of 147,000 from 2009 (915,000 Minnesotans, 18 percent of the population).

Per-person health care spending for people treated for hypertension was about 2.5 times as high as per-person spending for all Minnesotans (roughly \$15,440 and \$6,120 per-person, respectively, as seen in figure 4). Roughly 28 percent of the spending for people with hypertension in 2015, or \$4,360 per person, was directly attributable or related to the treatment of the disease.

As seen in figure 5, medical services spending accounted for about 81 percent of these directly attributable costs (\$3,520 per-person), with pharmacy spending making up the remaining 19 percent (\$840 per-person).

Figure 4: Per-Person Health Care Spending Among All Minnesotans and People with Hypertension

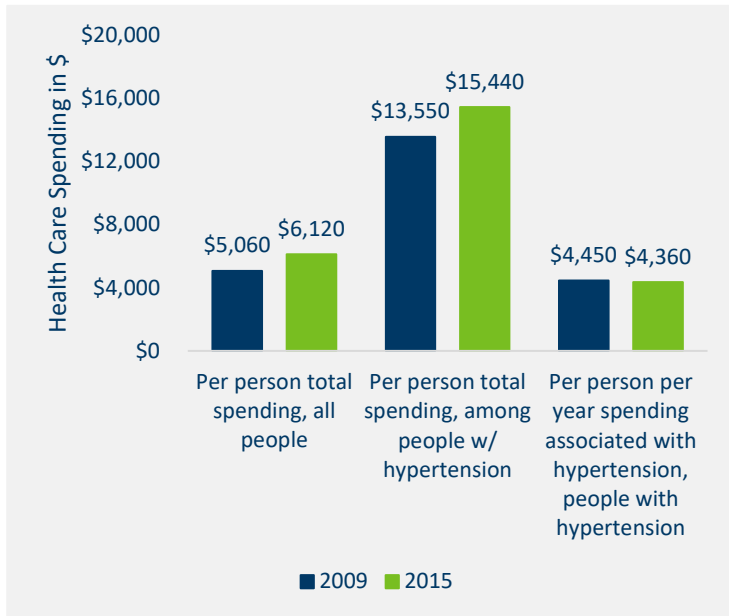
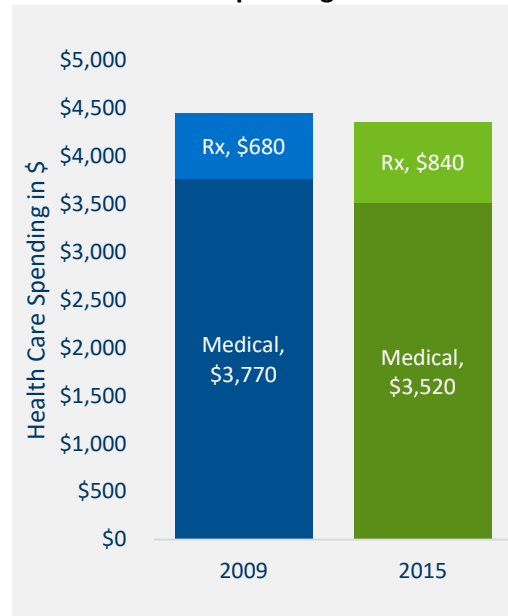


Figure 5: Per-Person Spending Associated with Hypertension, by Type of Spending



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Dementia-Attributable Health Care Spending (Ages 18 or Older)

In 2015, roughly 62,000 Minnesotans aged 18 or older—about 2 percent of that population—were estimated to have been diagnosed with and treated for Alzheimer’s disease, vascular dementia, or similar conditions, an increase of about 16,000 from 2009 (46,000 Minnesotans, 1 percent of the population aged over 18).

Per-person health care spending for people treated for a form of dementia was more than four times as high as per-person spending for all Minnesota adults (\$32,240 vs. \$7,320, respectively, as seen in figure 6). Roughly 11 percent of the spending for people with dementia in 2015, or \$3,470 per person, was directly attributable or related to the treatment of the disease.

For Minnesotans with dementia, nearly all of per-person health care spending attributable to the disease (roughly 95 percent or \$3,290) was for medical services spending, with the remainder (5 percent or \$180) attributed to pharmacy spending (figure 7).

Figure 6: Per-Person Health Care Spending Among All Minnesotans and People with Dementia

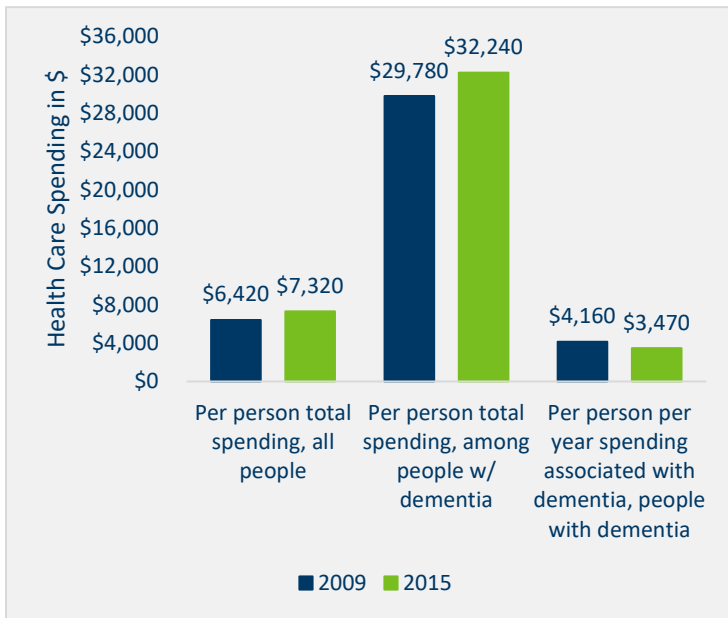
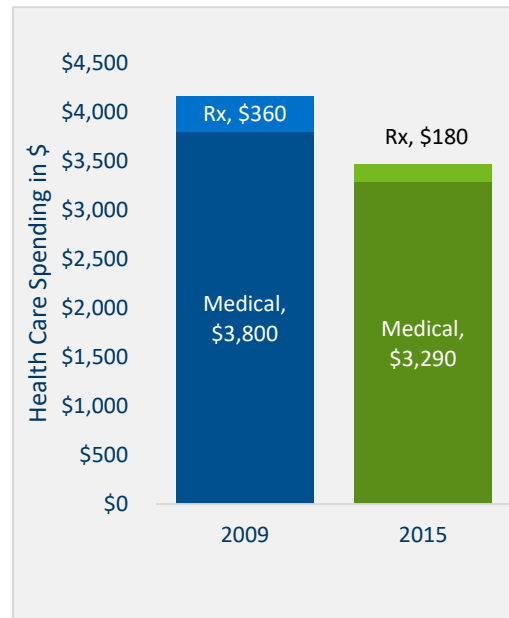


Figure 7: Per-Person Spending Associated with Dementia, by Type of Spending



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Chronic Disease-Attributable Health Care Spending (Ages 60 or Older)

Most people ages 60 years or older have been diagnosed with one or more chronic conditions for which they receive medical care or prescription drugs. In 2015, roughly 898,000 Minnesotans fell into this group, representing about 81 percent of Minnesotans 60 years old or older (compared to 695,000 or 78 percent of the population in 2009). Overall, this population has grown by roughly 29 percent or 203,000 individuals since 2009.

Because of the high prevalence of chronic conditions among people ages 60 or older, per-person health care spending for Minnesotans 60 years of age or older with a chronic condition was similar to that of all individuals in that age group (\$13,620 compared to \$11,310, as shown in figure 8). Roughly 81 percent of the spending for people in this age group with chronic conditions, or \$11,050 per person, was directly attributable or related to the treatment of chronic disease.

As seen in figure 9, 89 percent of per-person spending (\$9,790 per-person) for this group was attributed to medical services spending, with the remaining 11 percent or (\$1,260) attributable to pharmacy spending.

Figure 8: Per-Person Health Care Spending Among All Minnesotans and People with a Chronic Condition, Persons Age 60 or Older

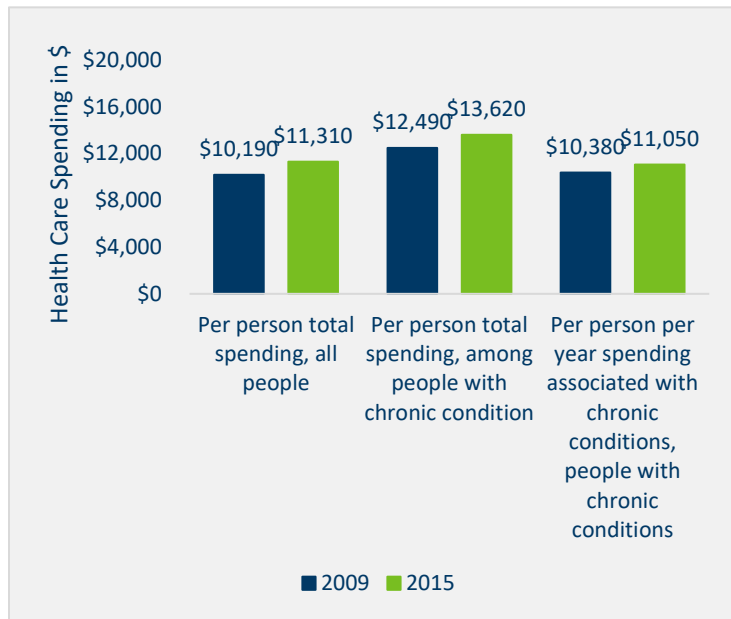
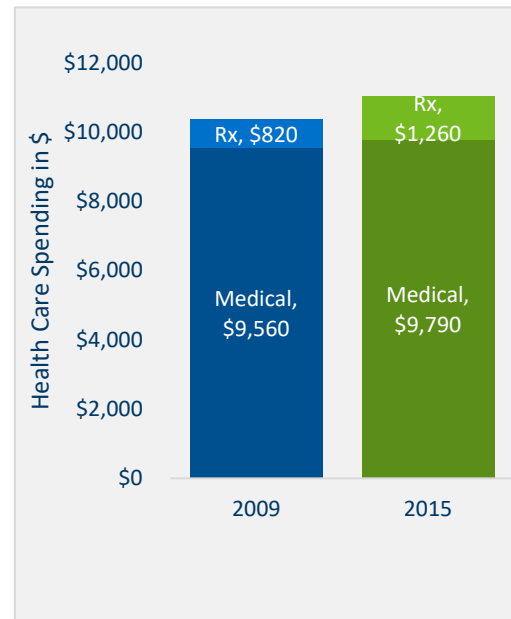


Figure 9: Per-Person Spending Associated with Chronic Disease, Persons Age 60 or Older, by Type of Spending



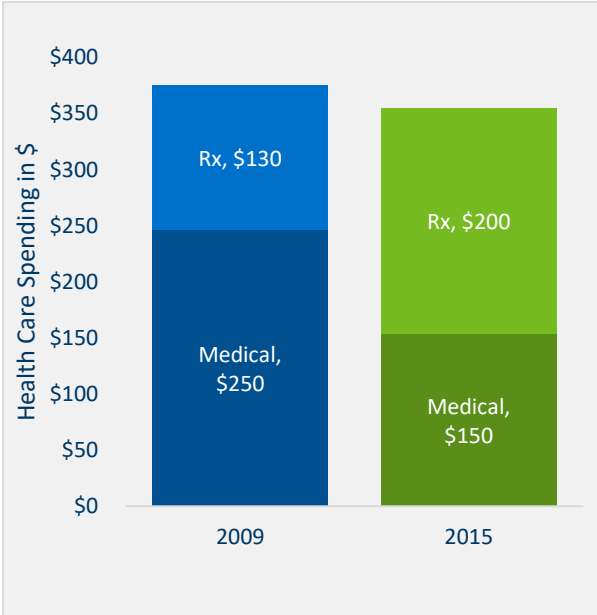
Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Obesity-Attributable Health Care Spending (Ages Ten to 64)

In 2015, about 873,000 Minnesotans between the ages of 10 and 64—22 percent of that population—meet definitions for obesity. This represents a decrease of roughly 46,000 from 2009 (919,000 Minnesotans, 24 percent of the population aged 10 to 64).

Per-person disease attributable spending for Minnesotans who meet the definition of obesity was \$350 in 2015, a decrease of about 8 percent from 2009 (\$380, as seen in figure 10). That year, pharmacy spending comprised roughly half (57 percent) of per-person obesity-attributable spending, with medical services, such as doctors' appointments, laboratory tests, procedures and equipment making up the remaining 43 percent.

Figure 10: Per-Person Spending Associated with Obesity, by Type of Spending



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

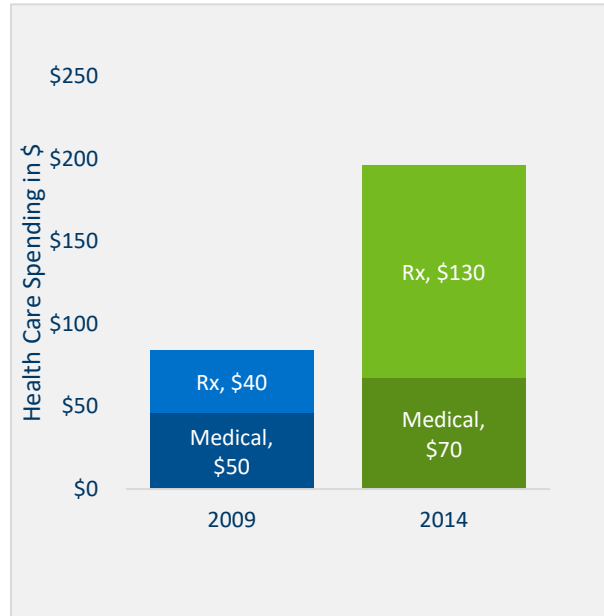
Smoking-Attributable Health Care Spending (Ages 18 or Older)

Estimates of smoking attributable health spending in Minnesota rely on pooled data from federal surveys that are only updated periodically. As a result, MDH is only able to produce these estimates biennially; estimates reported here are the same as those reported in the previous report and lag other estimates in this update.

In 2014, an estimated 1.243 million Minnesotans ages 18 to 64—37 percent of that population—were current smokers, former smokers, or lived with a family member who smoked. Relative to 2009, the number of adults under 65 who at some point were exposed to the effect of smoking fell in absolute terms (by roughly 46,000 Minnesotans) and as a share of all adults under 65 years (from 40 percent).

Per-person health care spending for Minnesotans that was directly attributable to smoking exposure amounted to about \$200 in 2014. That year, estimated medical services spending made up 35 percent of per-person costs attributed to smoking and secondhand smoke exposure in Minnesota. Pharmacy spending made up the remaining 65 percent (figure 11).

Figure 11: Per-Person Spending Associated with Smoking Exposure, by Type of Spending



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Current Disease Attributable Spending and Spending Projections

For this analysis, MDH is required to estimate actual spending in any given year (see the earlier sections) and compare it to updated ten-year projections of disease-attributable spending (this section). We found that in 2015, actual estimated spending for these conditions and risk factors was modestly *below* initially projected levels for that year (about \$22 million out of a total of \$11.8 billion).

As shown in table 1, lower-than-expected spending for *people 60 years or older* (about \$73 million) was nearly matched by higher-than-expected disease-attributable spending for *people younger than 60 years* (about \$51 million). Because Minnesota state-administered programs, such as Medical Assistance and the State Employee Group Insurance Program, largely encompass populations under the age of 60, health care spending attributed to these programs was estimated to actually *exceed* projections by somewhere between \$6 and \$11 million. As such, the condition that would trigger the requirement in statute for a transfer of resources between the General Fund and the state's Health Care Access Fund is not met.⁶

Table 1: Actual and Projected Estimates of Disease-Attributable Spending, 2015

Group		Spending (Million \$)		
		Actual	Projected	Difference
Condition Categories	Diabetes (all ages)	\$1,286.6	\$1,416.4	(\$129.8)
	Hypertension (all ages)	\$4,631.6	\$5,305.2	(\$673.6)
	Dementia (age 18 or older)	\$215.3	\$255.7	(\$40.4)
	Obesity (age 10 to 64)	\$309.6	\$422.9	(\$113.3)
	Smoking exposure (age 18 to 64)	\$68.4	\$180.5	(\$112.1)
All chronic conditions age 60 or older		\$9,922.7	\$9,968.3	(\$73.1)
Selected chronic conditions under age 60		\$1,861.3	\$1,810.3	\$51.0
Total		\$11,756.6	\$11,778.6	(\$22.0)

Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

Ten-year projections of health care spending show steady increases across all chronic conditions and risk factors studied. As shown in figure 12, projected cumulative spending

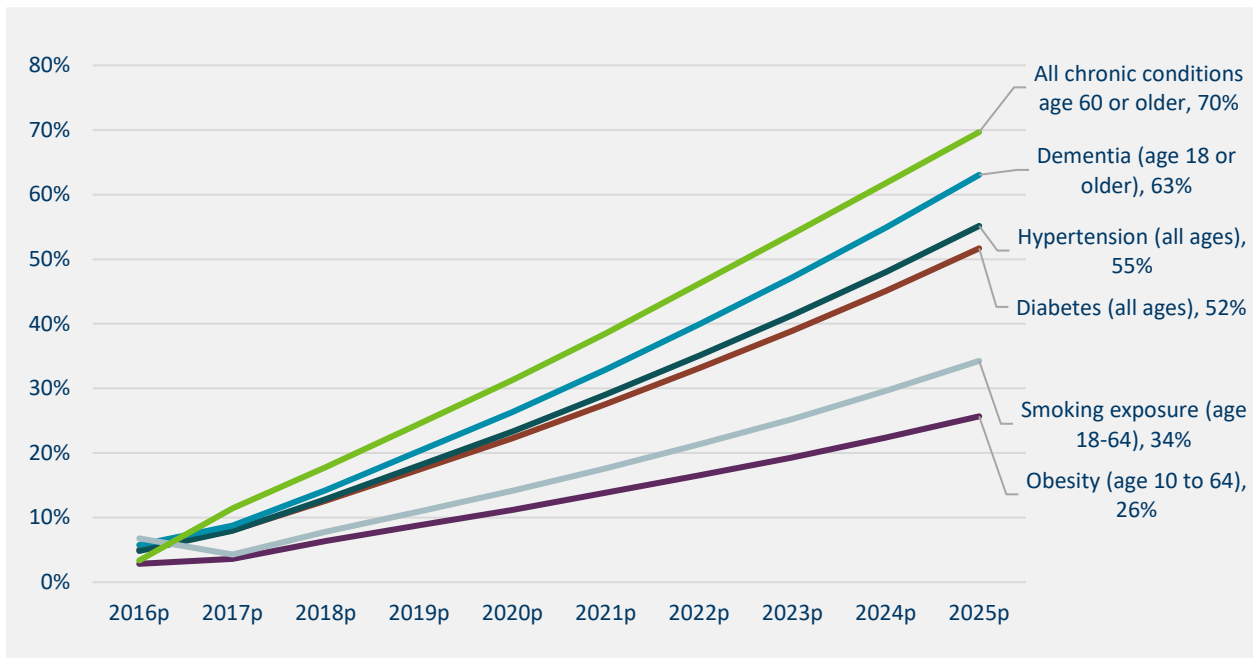
Source: Mathematic Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

⁶ Minnesota Statutes, Chapter 62U.10, subd. 8.

growth between 2015 and 2025 ranges from 26 percent for non-elderly adults with obesity to 70 percent for the cost of chronic conditions among people 60 years old or older.

To help assess if Minnesota is making progress over time and the comparison with actual spending, these projections only consider the expected impact of changes in the makeup of the population and in the cost or price of health care. If in addition the share of people within a certain age group treated for a condition increases, as we have been observing over time (see key findings), future spending has the potential to considerably outpace these projections.⁷

Figure 12: Cumulative Percent Change in Projected Health Care Spending Attributed to Selected Chronic Conditions and Smoking Exposure



Source: Mathematica Policy Research analysis of the Minnesota All Payer Claims Database and other data. Additional detail available in Appendix 6.

⁷ Projections in our analysis are designed to only consider the likely impact of demographic changes (how will the population within certain age groups change) and of inflation (how are medical and pharmaceutical prices expected to change).

Conclusion

In its second year, this annual report confirms many of the observations from the first publication:

- Chronic disease-related health care spending is substantial, particularly for Minnesotans age 60 or older;
- Treated prevalence of many chronic conditions continues to rise across nearly all age groups; and
- Over time, health care spending attributable to chronic conditions and smoking is expected to continue rising steadily.

In the first report on disease-attributable spending, we emphasized that solutions to this emerging crisis must focus on prevention and on building environments that promote health and well-being for all. We observed that these efforts must be system-wide and persistent, given the years or decades required for the needed changes and their impacts to fully manifest.

This second analysis offers continued evidence in support of this conclusion. Although there have been minor changes in the “shape” of the problem, such as the increasing role of pharmaceutical costs, the dual concerns of higher-than-expected treated prevalence across most of the condition categories and increased unit prices for services to treat these patients, remain the foremost takeaway from our analysis. This spells trouble for Minnesota if health reforms focus exclusively on *raising the efficiency of health care delivery*, as important as that may be on its own.

Another observation from our second-year analysis that mirrors comments in the last report concerns the technical challenges associated with this work and the potential for misattributing noise from the estimation process to meaningful changes in trends. Our analysis of disease-attributable spending continues to rely on a complex interplay of numerous data sources and methodological assumptions, each associated with a considerable degree of uncertainty. Together, they affect the precision of point estimates and trends, and limit the conclusions one may draw with any degree of confidence. In future years, this will be made more challenging by transitions between coding systems of diagnostic information,⁸ and a reduction in the volume of available data for Minnesota’s commercially insured population.

Given the impact these complexities will have on this work, the costs associated with producing these analyses, and our ability to develop consistent estimates over time and align them with

⁸ The transition to the 10th version of the International Statistical Classification of Diseases and Related Health Problems (ICD) has been shown to considerably affect estimates of treated prevalence and spending for a range of diseases. See Appendix 6 for additional detail.

the projection baseline, the Legislature could consider a range of alternatives to continuing this work as-is. In the short term, the Legislature could consider no longer requiring the development of annual estimate and discontinuing the required comparison of actual disease-attributable estimates to baseline projections. Over the longer-term, the Legislature might wish to deliberate how a version of this analysis or more targeted studies of certain chronic disease trends could increase the *applied* value for patients, providers, payers, public health practitioners, or other stakeholders. Such analyses could aim to overcome some of the inherent limitations of our work to date, including its focus on health care spending specific to a *single* disease (most patients with chronic conditions have more than one condition at a time); the emphasis on health care costs, which fails to capture the considerable indirect cost associated with disease; or the interaction of aging, chronic disease and long-term care needs in the state.

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