

# Potential Health Care Cost Savings from Reducing Overweight/Obesity and Smoking

Prepared for the Health Care Transformation Task Force  
by Minnesota Department of Health Staff  
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At the October meeting of the Transformation Task Force, staff presented information on the potential savings that may be realized if there are reductions in risk factors contributing to chronic diseases. The focus was placed on two of the most common and costly risk factors: overweight/obesity and smoking. We presented a baseline measure of what we estimate for the prevalence of overweight/obesity and smoking and the costs associated with each. We compared these cost estimates to alternative targets for these risk factors and estimated the potential savings associated with each target.

The Task Force asked staff to do additional work to identify target levels for overweight/obesity and smoking that are aggressive yet achievable, and to estimate the potential savings into the future. The analysis in this paper estimates baseline levels of overweight/obesity and smoking into the future and the potential savings associated with reaching a particular set of “aggressive but achievable” goals.

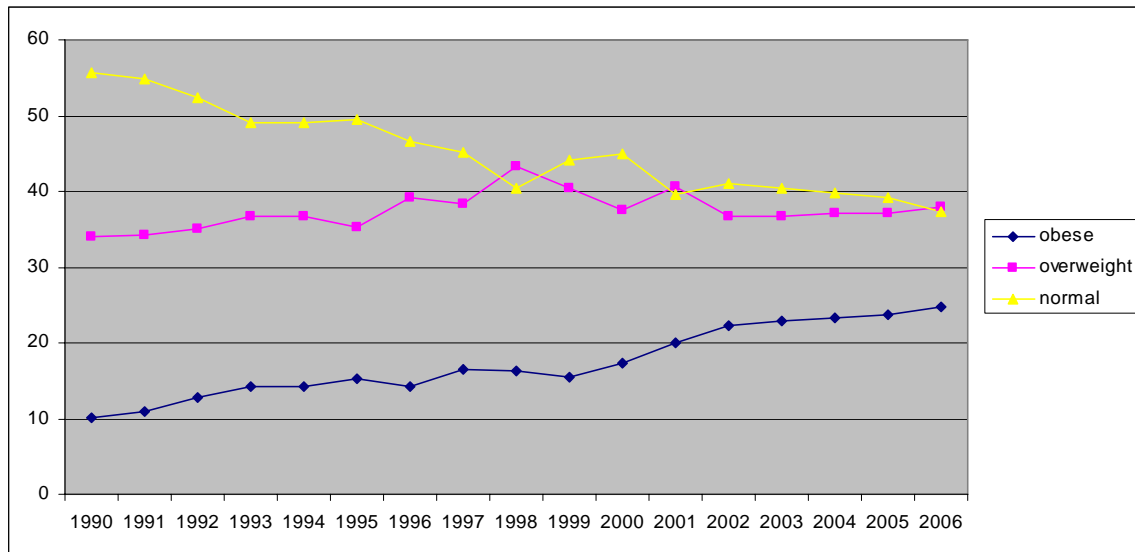
## Obesity

Using historical data on the percentage of Minnesota’s population that is overweight or obese, MDH staff believes that an aggressive yet achievable target for overweight/obesity would be to reduce the prevalence of obesity to 15%, reduce the prevalence of overweight to 35%, and to increase the percentage of healthy weight Minnesotans to 50% by the year 2020 (Table 1). As suggested by the Task Force, the goal in early years is to stabilize the weight distribution, and then eventually reduce levels of overweight/obesity. Achieving this target would bring Minnesota back to levels of overweight and obesity that existed in the state in the mid-1990s (Figure 1).

**Table 1: Target Weight Distribution**

	Obese	Overweight	Healthy Weight
2007	25.3%	38.1%	36.6%
2008	25.3%	38.1%	36.6%
2009	25.3%	38.1%	36.6%
2010	25.0%	38.0%	37.0%
2011	24.0%	37.0%	39.0%
2015	20.0%	35.0%	45.0%
2020	15.0%	35.0%	50.0%

**Figure 1: Historical Trends in Weight Distribution in Minnesota**



Based on the annual target levels in Table 1, the estimated potential savings from achieving the goal in 2008 are 0.11% of the estimated annual health care spending in Minnesota (Table 2), when compared to the baseline projections. In 2020, the potential savings grow to over 3.5% of the Minnesota estimate for annual health care spending in that year. If the weight distribution targets are met, the potential cumulative savings from 2008-2020 amount to over \$14.6 billion.

**Table 2: Potential Annual Cost Savings from Meeting Obesity and Healthy Weight Targets**

	Potential Savings (in millions)	Cumulative Savings (in millions)	Annual Savings as a % of MN Annual Health Care Spending	Cumulative Savings as a % of MN Total Health Care Spending
2008	\$39.7		0.11%	
2009	\$86.6	\$126.3	0.23%	0.17%
2010	\$160.4	\$286.7	0.39%	0.25%
2011	\$332.0	\$618.7	0.76%	0.39%
2015	\$1,236.3	\$4,060.8	2.15%	1.10%
2020	\$2,806.9	\$14,607.8	3.52%	2.03%

## Savings by Payer Type

In addition, the Task Force asked staff for information on the distribution of potential savings by payer. A 2004 study of state-by-state expenditures attributable to overweight and obesity estimated that in Minnesota about 17% of the cost of overweight and obesity is paid for by Medicare, 25% by Medicaid, and the remaining 58% by private insurance and other payers.<sup>1</sup> Table 3 below uses these estimates to distribute the potential savings from achieving the overweight/obesity targets by payer.

**Table 3: Obesity-Attributable Savings Distributed by Payer Type**

	<b>Potential Savings (in millions)</b>	<b>Medicare</b>	<b>Medicaid</b>	<b>Private/Other</b>
2008	\$39.7	\$6.9	\$9.9	\$22.9
2009	\$86.6	\$15.0	\$21.5	\$50.0
2010	\$160.4	\$27.9	\$39.9	\$92.7
2011	\$332.0	\$57.7	\$82.5	\$191.8
2015	\$1,236.3	\$214.7	\$307.4	\$714.1
2020	\$2,806.9	\$487.5	\$698.0	\$1,621.4

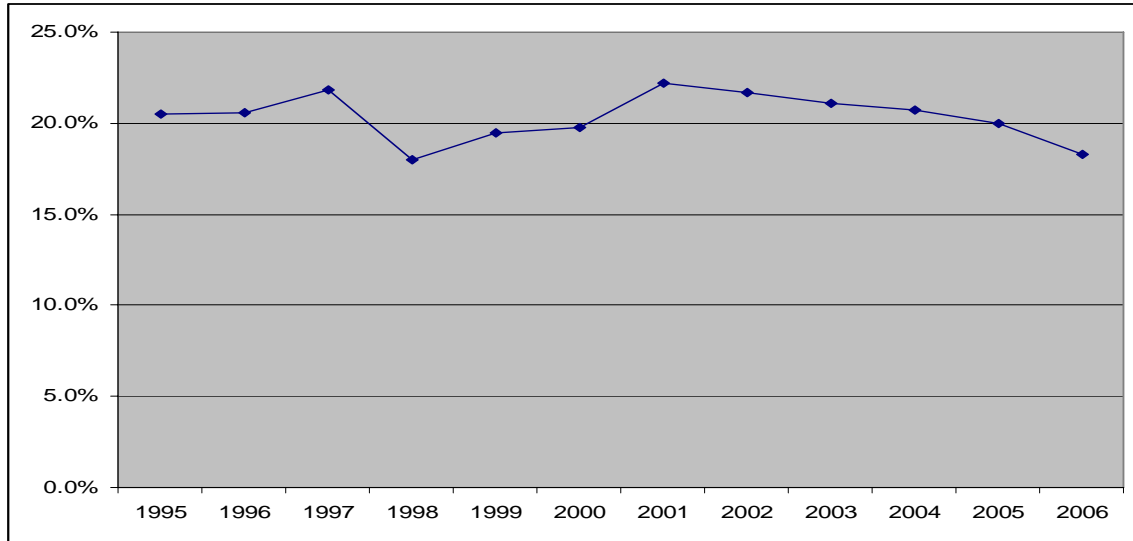
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<sup>1</sup> Finkelstein, A., Fiebelkorn, I. and G. Wang. "State-Level Estimates of Annual Medical Expenditures Attributable to Obesity" Obesity Research, Vol. 12, No. 1. January 2004.

## Smoking

In recent years, smoking prevalence in Minnesota has been declining by about 0.2 percentage points per year (Figure 2).

**Figure 2: Current Adult Smokers in Minnesota**



For smoking, we calculated potential savings from achieving the targets shown in Table 4 below. These targets call for steady decreases based upon historical trends until 2010. From 2010 to 2013, the target declines by two percentage points per year. This would yield a total reduction in the adult smoking rate of almost 50% from our current prevalence level by 2013 (Table 4).

**Table 4: Target Smoking Level**

	2008	2009	2010	2011	2012	2013
<b>Smoking Target</b>	17.7%	17.3%	15.3%	13.3%	11.3%	9.3%

If these annual targets were achieved, the potential savings in 2008 would be approximately 0.09% of the estimated annual health care spending in Minnesota, when compared to the baseline projections (Table 5). In 2013 if the smoking target is met, the potential savings would be around 3.0% of annual spending in that year. If the smoking targets are met, the potential cumulative savings from 2008-2013 amount to over \$3.7 billion.

**Table 5: Potential Annual Cost Savings from Meeting Smoking Targets**

	Potential Annual Savings (in millions)	Cumulative Savings (in millions)	Annual Savings as a % of MN Annual Health Care Spending	Cumulative Savings as a % of MN Total Health Care Spending
<b>2008</b>	\$31.5		0.09%	
<b>2009</b>	\$66.2	\$97.7	0.17%	0.13%
<b>2010</b>	\$353.5	\$451.2	0.86%	0.39%
<b>2011</b>	\$689.0	\$1,140.2	1.57%	0.72%
<b>2012</b>	\$1,071.7	\$2,211.9	2.28%	1.07%
<b>2013</b>	\$1,508.1	\$3,720.0	3.00%	1.45%

**Savings by Payer Type**

There is currently no data available on the possible distribution of smoking-attributable savings by payer type. However, if spending were distributed by payer similar to the published estimates for overweight/obesity, 17% of the savings would be to Medicare, 25% to Medicaid, and the remaining 58% to private insurance and other payers.

**Table 6: Smoking-Attributable Savings Distributed by Payer Type**

	Potential Savings (in millions)	Medicare	Medicaid	Private/Other
<b>2008</b>	\$31.5	\$5.5	\$7.8	\$18.2
<b>2009</b>	\$66.2	\$11.5	\$16.5	\$38.3
<b>2010</b>	\$353.5	\$61.4	\$87.9	\$204.2
<b>2011</b>	\$689.0	\$119.7	\$171.3	\$398.0
<b>2012</b>	\$1,071.7	\$186.2	\$266.5	\$619.1
<b>2013</b>	\$1,508.1	\$262.0	\$375.1	\$871.2

**Limitations:**

There are several limitations to this analysis. First, all of the estimates of potential savings are based upon historical levels of growth or decline. It is unclear whether future trends will be similar. In addition, the estimates do not include any cost of the interventions that may be necessary to reach target levels of risk factor prevalence.

The analysis also does not account for the correlation between obesity/overweight and smoking. There is overlap between the share of the population that is obese or overweight and the share of the population that smokes, and thus the potential savings from achieving the targets for overweight/obesity and smoking are not mutually exclusive. However, we were unable to obtain data to estimate the degree of overlap between these populations. As a result, adding together the estimated savings from reducing overweight/obesity and smoking likely overstates the potential savings from achieving these goals together.

Finally, all of the estimates for potential savings are for direct medical expenditures only, consistent with the Task Force's charge to reduce health care spending in Minnesota. However, there are significant indirect costs (lost productivity, absenteeism) that are not included in our estimates that would also be reduced significantly by achieving the goals for overweight/obesity and smoking.

## **APPENDIX: Calculation of Baseline Measures and Future Prevalence Estimates**

### **Obesity**

#### **Step One:**

To determine our baseline for obesity, prevalence data was collected from the Behavioral Risk Factor Surveillance System (BRFSS) for the weight categories in Minnesota in 2006. We assumed that there was no change in the prevalence for 2007 and estimated the number of adults in each weight category using population estimates from the Census Bureau. Next, we used estimates from Ken Thorpe's research on the differences in per capita spending by weight group (obese, overweight, and healthy weight) to estimate total spending in each weight category.<sup>2</sup> We used spending growth estimates from CMS to state the estimates in terms of 2007 spending.

The potential decrease in obesity-attributable medical expenditures ranged from approximately \$597 million to \$1.05 billion in the different scenarios. There was agreement among Task Force members that scenarios two and three were in line with what they wanted to include in their recommendations.

#### **Step Two:**

In order to project the rise of obesity prevalence if no action is taken, we used methodology similar to a recent report from the Milken Institute.<sup>3</sup> We assumed that the prevalence of obesity will increase at half of the historical rate until 2015, when it will plateau. From then on, it will continue to grow, but at one quarter of the historical rate.

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<sup>2</sup> Thorpe, K., Florence, C., Howard, D., and P. Joski. "The Impact of Obesity on Rising Medical Spending" Health Affairs, October 2004: W4-480:486.

<sup>3</sup> R. DeVol and A. Bedroussian. "An Unhealthy America: The Economic Burden of Chronic Disease." The Milken Institute. October 2007.

## **Smoking**

### **Step One:**

The baseline for smoking was calculated in a similar manner. We began with prevalence data from the BRFSS for current adult smokers in Minnesota in 2006. We assumed no change in the smoking rate for 2007 and estimated the number of adult smokers. Next, we used a report issued by BlueCross/BlueShield of Minnesota that gives a per capita estimate of total smoking-attributable medical costs in 2002.<sup>4</sup> We converted this number to 2007 dollars using estimates from CMS for medical expenditure growth. Then, using population statistics with the per capita figure, we could estimate total smoking-attributable medical costs in the state. From this, the cost per adult smoker was derived.

If the smoking targets were met, it was calculated that between \$467 million and \$1.37 billion could potentially be saved in 2007. There was some discussion among Task Force members about which target is most appropriate. The majority agreed that scenarios two and three were the best choice.

### **Step Two:**

In order to project the smoking rate if no action is taken, we assumed that smoking will continue to decline at the historical average annual rate.

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<sup>4</sup> "Health Care Costs and Smoking: The Bottom Line." BlueCross/BlueShield of Minnesota.