

Executive Summary

The Economic Cost of Physical Inactivity in Michigan



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Introduction

The scientific evidence is clear—regular physical activity has powerful positive effects on both physical and psychological health. Conversely, physical inactivity has a high human cost in terms of health. It shortens years of life, decreases quality of life, and limits functional independence. These health effects arise from physical inactivity's contribution to cardiovascular disease, obesity, diabetes, osteoporosis, mental health disorders, and some cancers (i.e., colon and breast).¹

This study was commissioned by the Michigan Governor's Council on Physical Fitness, Health, and Sports and its partners (see page 4) to quantify the corresponding *economic* cost of physical inactivity in Michigan.

Total Cost of Physical Inactivity

Adults are considered to be physically active if they engage in at least 30 minutes of moderate physical activity on five or more days per week. Fifty-five percent of Michigan adults fail to meet this criterion and are therefore classified as physically inactive.²

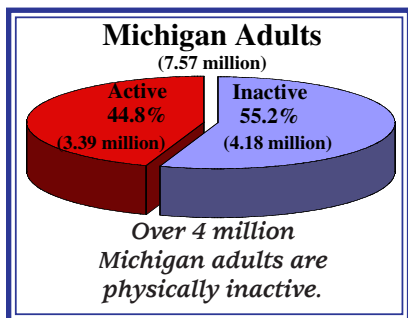


higher taxes and increased cost of goods. On average, physical inactivity cost each Michigan adult resident \$1,175 last year.

The Medicaid portion (direct and indirect costs) of the \$8.9 billion in total costs associated with physical inactivity was \$69 million (see Table 1). If the State of Michigan Medicaid funding were not committed to sedentary lifestyles, it could: a) fund school nurses in all public middle and high schools, or b) restore all chronic disease prevention programs (diabetes, cancer, heart, etc.) with dollars left for new physical activity programming.

It is likely that the total costs of physical inactivity in Michigan are even higher than those reported here (see Note on page 4). The financial calculations performed in this cost analysis were based on conservative assumptions (e.g., prescription drug costs and out-of-pocket payments were not included). Breakdowns of the cost of physical inactivity are presented in the following sections.

The dollars spent on Medicaid for physical inactivity could fund a school nurse in every public middle and high school.



Overall, physical inactivity among Michigan's 7.6 million adults cost nearly \$8.9 billion in 2002 (see Table 1). These costs are borne largely by employers through health insurance premiums and lost productivity, and by the state through Medicaid payments. Ultimately, Michigan residents absorb these costs in terms of

Table 1. Direct and indirect costs associated with physical inactivity in Michigan (2002).

Cost Category	Direct Costs (in \$millions)	Indirect Costs (in \$millions)	Sub-totals (in \$millions)
Medical care	\$57.84	\$173.53	\$231.37
[Medicaid portion]	[\$17.25]	[\$51.75]	[\$69.00]
Workers' compensation	\$7.97	\$31.89	\$39.86
Lost productivity	\$8,621.85	\$0.00	\$8,621.85
Sub-totals	\$8,687.66	\$205.42	
<i>Total (direct and indirect, in millions)</i>			\$8,893.08

Direct Costs of Physical Inactivity

Total direct costs of physical inactivity in Michigan for medical care, workers' compensation, and lost productivity were over \$8.6 billion in 2002 (see Table 1).

Medical Care

Physical inactivity is a risk factor for the many medical conditions listed in Table 2. Direct costs for medical care related to these conditions include medical claims and charges. Direct costs of \$653 million were calculated for all causes using claim and charge data from both the private sector (Blue Cross Blue Shield of

Michigan who provides coverage to approximately 55% of Michigan adults with health insurance)³ and the public sector (Medicaid).⁴

Direct costs of medical care associated with

physical inactivity were 8.9% of costs for all causes, or \$58 million, in 2002. A technique called Proportionate Risk Factor Cost Appraisals™ (PRFCA)* was used to quantify the percentage of direct costs attributable to physical inactivity.⁵ In summary, nearly 10¢ of every dollar spent on primary medical care was due to physical inactivity.

Workers' Compensation

Only a portion of all costs associated with musculoskeletal disorders are paid by medical care. Most workers' compensation costs, too, are connected to musculoskeletal conditions and a sizable percentage of these claims are connected to a person's physical fitness.⁶ Direct costs of \$221 million were calculated for musculoskeletal injuries using actual claims and charges for workers' compensation and were estimated using data from several state and national databases.⁷⁻¹¹

*PRFCA is an economic formula that factors in the medical care claim cost of the medical conditions listed in Table 2, the prevalence of associated risk factors within the population, the epidemiological weight of each risk factor, and the number of claims filed.

Direct costs of workers' compensation associated with physical inactivity were 3.6% of the costs of all musculoskeletal claims, or \$8 million** in 2002 (see Table 1). Almost half of these claims were for sprains or strains and are tied to cumulative trauma disorders. A sizable percentage of these claims could be avoided if employees had higher levels of physical fitness. In summary, nearly 4¢ of every dollar spent on workers' compensation was due to physical inactivity.

Lost Productivity

Direct costs to businesses for lost productivity are the largest contributor to the overall cost of physical inactivity in Michigan (see Table 1). These direct costs arise from a) absenteeism, b) presenteeism (due to workers who are on the job but not fully functioning), c) short-term disability, and d) on-the-job injuries (due to lost work time not qualifying for workers' compensation).

Calculations were tailored to reflect the average worker in Michigan. Lost productivity costs were based on data regarding the actual wages paid to Michigan workers, the number of Michigan workers, and the average hours lost due to physical inactivity.¹² Problems caused by physical inactivity resulted in workers losing, on average, 16 hours (2 days) of work to absence, 14.5 hours (1.8 days) to short-term disability, and 131.5 hours (over 16 days) to limited functioning each year.^{12,13} These lost hours resulted in lost productivity costs of over \$8.6 billion in 2002.

Physical inactivity results in the loss of 162 productive hours (approximately 20 days) per worker for a statewide cost of \$8.6 billion annually.

No data are available on the direct cost for all causes of lost productivity in Michigan. Therefore, it is unknown how much of every dollar was attributable to lost productivity due to physical inactivity.

**Also calculated using PRFCA.

Table 2. Medical care costs associated with various medical conditions in Michigan (2002).

Medical Condition	Examples	Physical Inactivity Costs (in \$millions)	Total Costs (in \$millions)	Physical Inactivity as Percent of Total
Circulatory Disorders	heart attack, stroke	\$13.56	\$193.66	7.0%
Cancer	colon, breast	\$13.02	\$91.78	14.2%
Endocrine/Metabolic/Nutritional	diabetes	\$15.10	\$87.42	17.3%
Mental Health Disorders	anxiety, depression	\$1.13	\$11.56	9.8%
Musculoskeletal Disorders	arthritis, backache	\$7.99	\$191.85	4.2%
Neurological Disorders	carpal tunnel syndrome	\$7.04	\$76.57	9.2%
Total		\$57.84	\$652.84	8.9%

Indirect Costs of Physical Inactivity

In order to determine the total cost of physical inactivity in Michigan, both direct and indirect costs must be calculated. The previous sections on medical care, workers' compensation, and lost productivity compose the direct costs. Indirect costs are usually substantially higher than direct costs. Total indirect costs of physical inactivity were \$205 million in 2002 (see Table 1).

Indirect costs for medical care include inefficiencies associated with replacement workers, lost opportunities, and other eventual costs (e.g., longer rehabilitation times, drug reactions, and additional usage of medical services).¹⁴ A ratio of 3:1 was applied to reflect modest estimates reported in the literature.¹⁵ The indirect cost of medical care due to physical inactivity was estimated to be over \$173 million in 2002.

Indirect costs for workers' compensation largely reflect the cost of hiring and training replacement workers for employees who have a lost time occupational claim. The ratio of 4:1 was used to reflect a typical direct to indirect cost ratio associated with workers' compensation.¹⁶ In 2002, the indirect cost due to physical inactivity was estimated to be almost \$32 million.

Financial Forecast and Cost Savings

Costs associated with physical inactivity will inevitably increase due to Michigan's aging population, modest population growth, increasing labor costs, high prevalence of physical inactivity, and rising medical care cost inflation. In fact, if medical care costs, workers' compensation payments, and employee wages and benefits continue to rise at their present rates, the costs related to physical inactivity will rise to over \$12.65 billion in 2007—a five-year increase of 42%. If Michigan residents do not increase their physical activity levels, the Michigan economy will suffer increasingly heavy costs as aging adults endure

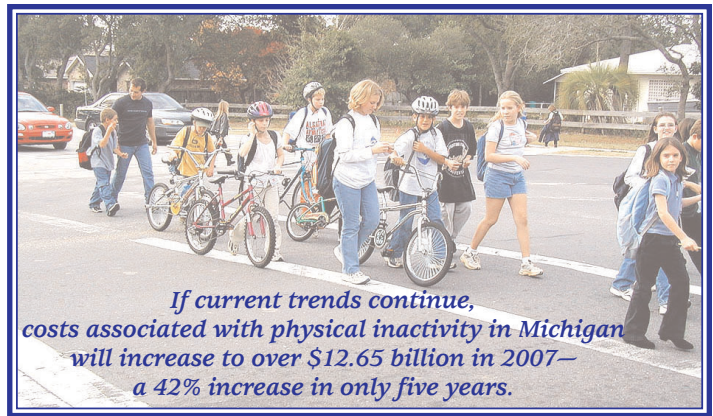
premature and/or recurrent illnesses.

However, a cost avoidance of approximately \$575 million per year over the next four years can be realized if

If 1 in 20 sedentary adults become physically active, a cost avoidance of approximately \$575 million per year over the next four years can be realized.

This equates to jobs for over 15,400 new employees.

only one in 20 sedentary adults become physically active and remain active during this timeframe. Financially, this annual cost savings would be sufficient to pay for more than 15,400 new employees in Michigan, who in turn, would add to the tax base and buying power of the Michigan economy.



Call to Action

The cost of physical inactivity in Michigan is huge. Investments in the promotion and support of physically active lifestyles among Michigan residents have the potential of returning enormous dividends in terms of cost savings for illness and injury related to inactivity. Programs designed to increase awareness of health risks associated with physical inactivity and to encourage regular, moderate exercise are paramount to helping Michigan's citizens enhance their quality of life and decrease their risk of serious illness and premature death.

Michigan has a solid history of strong collaboration among organizations that promote healthy lifestyles. The partners in this study are equipped to provide leadership in *Getting Michigan Moving*.

The vision of the Governor's Council on Physical Fitness, Health, and Sports is a physically educated population with the knowledge and skills to enjoy healthy, vigorous lifestyles, in communities designed to support physical activity and active transportation.

△ Michigan's Exemplary Physical Education Curriculum (EPEC)¹⁷ is a major public health initiative being carried out completely in the education arena. It prepares students with the knowledge, skills, attitudes and confidence to be physically active now and in the future. EPEC represents a model partnership between the Governor's Council, the Michigan Department of Community Health and the Michigan Department of Education. Most important, on-going evaluations indicate EPEC instruction is effective. With widespread implementation, EPEC is expected to have a positive long-term impact on the health of Michigan residents.

△ The promotion of Active Community Environments (ACE)¹⁸ is another long-term investment in the health of residents. Helping communities understand how the environment can profoundly affect health is an important new role for the Department of Community Health and the Governor's Council. The two organizations have worked together to develop a community self-assessment inventory. This tool brings together leaders from multiple disciplines to analyze the community facets that support physical activity.



Individuals and organizations across Michigan are called upon to promote healthy lifestyles. Physically active citizens need to encourage inactive family and friends to join them in a walk or a bike ride. Worksites, schools and communities of faith need to plan events that include opportunities for physical activity. Communities need to consider how planning and land use impact lifestyles. Changing the activity habits of one in 20 (about 209,000) Michiganders is achievable if we all work together.

This report provides an evidence-based case for the need to invest in physical activity for Michigan's residents. Michigan faces severe health and economic consequences as a result of physical inactivity. However, preventive action—even action that convinces only a small percentage of residents to incorporate physical activity into their lifestyle—has the potential to deliver an enormous return on investment.

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Note

The financial calculations performed in this cost analysis were based on conservative assumptions. Therefore, it is likely that the total costs of physical inactivity in Michigan are even higher than those reported here. Examples that these estimates are conservative include, but are not limited to, the following:

- The costs of prescription drugs to treat the effects of physical inactivity were not included.
- Co-payments by those insured were not included.
- Lost productivity cost estimates were based, in part, on an average annual salary and benefits of \$37,185 which is likely lower than the actual median salary of many Michigan workers employed in higher paying professions such as auto assembly, health care, university personnel, and high technology.
- Risk factor prevalence rates used in PRFCA are based largely on self-reported input which typically underestimates the real prevalence of specific risk factors.

Funding Partners

- National Governor's Association Center for Best Practices
- Michigan Department of Community Health
- Michigan Health and Hospital Association
- Michigan State University Extension Family and Consumer Sciences
- Michigan State Medical Society
- Michigan Association for Health, Physical Education, Recreation and Dance
- American Cancer Society
- Michigan Department of Education
- American Heart Association

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