Real Risks and Personal Health:
A Three Part Plan to Address Childhood Obesity in Michigan

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Students Reinventing Michigan Competition
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Abstract:

In 2012 in Michigan, 32% of adults and 17% of children were obese. Michigan is in the top ten states with the highest obesity rates, and spends nearly $3 billion in medical costs associated with obesity. Michigan's adult obesity rate is projected to double to nearly 60% by the year 2030 if not action is taken to reverse this upward trend. Obesity causes many health problems including high blood pressure, diabetes, and alteration of cholesterol level as well as social problems including negative stigma and social isolation. I propose a three part plan entitled Real Risks and Personal Health to eliminate childhood obesity in Michigan. The first phase is called Real Risks, and includes a multimedia campaign featuring the dangers of childhood obesity to create a stronger sense of urgency when dealing with childhood obesity. The second phase is called Personal Health, which would consolidate current competing messages on health promotion from different sources to create one message on health for the State of Michigan. The third phase is early intervention in schools and Pre-K programs to instill healthy behaviors earlier and promote Michigan's one message on health in schools.

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Executive Summary

Why is childhood obesity a problem?

- Leading cause of three heart disease risk factors: high blood pressure, diabetes, and alteration of cholesterol level
- Childhood obesity can cause type 2 diabetes, hyperinsulinemia, hypertenstion, dyslipidemia, joint abnormalities, polycystic ovarian syndrome, nonalcoholic fatty liver disease, and sleep disturbances
- Negative stigma, social isolation, and peer exclusion.

National cost to individuals and taxpayers

- Direct costs of childhood obesity: annual prescription drug, emergency room, and outpatient costs" is $14.1 billion with additional inpatient costs of $237.6 million
- Direct costs of adult obesity: $147 billion annually; Indirect costs in the labor market including obesity-related job absenteeism: $4.3 billion annually
- In 2008, obesity-related illness cost Medicare $19.7 billion and cost Medicaid $8 billion

Michigan Statistics

- As of 2012, 32% of Michigan adults and 17% of its youth are obese
- In 2011, Michigan had the 10th highest prevalence of obesity of all 50 states
- Michigan's obesity rate projected to double to nearly 60% by 2030
- In 2011, Michigan spent nearly $3 billion in medical costs related to obesity
- If Michiganders reduced their BMI rates to lower levels, Michigan could save over $13 billion annually in reduced health care costs

Real Risks and Personal Health

1. Real Risks: A multimedia campaign creating a stronger sense of urgency to enact change now
2. Personal Health: One message on health promotion for the State of Michigan
3. Early Intervention: Engage schools and Pre-K programs in the mission to eliminate childhood obesity

A Call to Action

"Our vision is for Michiganders to be healthy, productive individuals, living in communities that support health and wellness, with ready access to an affordable, person-centered, and community-based system of care." – Governor Rick Snyder, 2011[1]

The Problem of Obesity

Consequences of Obesity

Obesity is a health problem in and of itself, and it also causes and contributes to other health problems. Obesity is a leading cause of three heart disease risk factors: high blood pressure, diabetes, and alteration of cholesterol level.[2] Childhood obesity can cause type 2 diabetes, hyperinsulinemia, hypertenstion, dyslipidemia, joint abnormalities, polycystic ovarian syndrome, nonalcoholic fatty liver disease, and sleep disturbances.[3] In fact, childhood obesity is the leading cause of pediatric hypertension and Type II diabetes.[4] These health problems can persist into adulthood, with long term effects.[5] Childhood obesity also results in non-health related problems including lower self-esteem and negatively impacted peer relationships, which early research shows can contribute to early childhood depression.[6] Because of the negative stigma, children who are overweight or obese have to deal with social isolation and peer exclusion. According to studies done in 2000 and 2003, long term adult consequences of childhood obesity are "employment and social discrimination, depression, and lowered self-esteem, believe to be associated with years of teasing, bullying, and social discomfort."[7]

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[1] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan." Department of Community Health, June 2012. Web. 15 Dec. 2013.

[2] Katie Charles, "Daily Checkup: Early education can head off childhood obesity." *New York Daily News* 10 Nov. 2013. Web. 17 Dec. 2013. <http://www.nydailynews.com/life-style/health/daily-checkup-addressing-childhood-obesity-early-article-1.1506448>.

[3] Laure DeMattia and Shannon L. Denney, "Childhood Obesity Prevention: Successful Community-Based Efforts." *Annals of the American Academy of Political and Social Science* 615 (2008): 83-99. *JSTOR*. Web. 29 Dec. 2013. <http://www.jstor.org/stable/25097977>.

[4] Dolores A. Stegelin, "Children, Teachers, and Families Working Together to Prevent Childhood Obesity: Intervention Strategies." *Dimension of Early Childhood* 36.1 (2008): 8-16. *ERIC*. Web. 30 Nov. 2014.

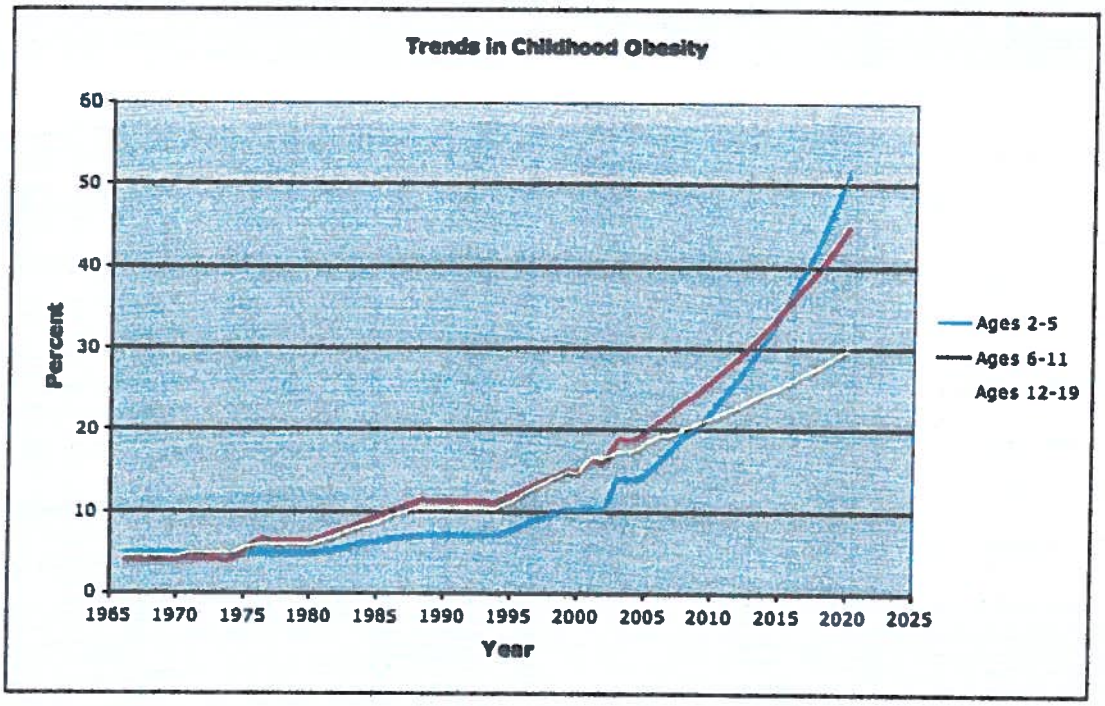
[5] Laure DeMattia and Shannon L. Denney, 84.

[6] Dolores A. Stegelin, 10-11.

[7] Ibid., 10.

An Increasing Trend

There has been a trend of increased childhood obesity in the United States for the past four decades. In 1976-1980 7% of children were obese, in 1988-1993 11% of children were obese, and this number increased to 15.3% by 2000.[8] Today, one third of American children are either overweight or obese.[9] Childhood obesity often leads into adult obesity. A 1999 study by Guo and Chumlea found that if a child is obese by age four, he or she has a 20% likelihood of being overweight as an adult, and that if a child is obese by adolescence he or she will have an 80% likelihood of becoming an overweight adult.[10] These findings were reinforced by a 2003 study that found that an obese 6 year old is 50% more likely to become an obese adult.[11] Obesity is a problem that is unfortunately affecting many people, and can begin very early in a child's life.



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[8] Dolores A. Stegelin, 9.
[9] Katie Charles.
[10] Laure DeMattia and Shannon L. Denney, 84.
[11] Dolores A. Stegelin, 10.
[12] Casie Campbell, William Gilmore, James McGinty, Jennifer Pickering, and Joseph Ramos, "Minimizing Technologies' Contribution to Childhood Obesity." *Technology Assessment.* N.p., 23 Apr. 2009. Web. 30 Jan. 2014. <http://wmgilmore.iweb.bsu.edu/technology_assessment.html>.

Causes of Obesity

In order to combat obesity, specifically childhood obesity, one must first understand the causes of obesity. There are many contributing factors, and the relative influence of some of these factors are contested; however below is an overview of some of the known causes of obesity. Looking to the energy balance equation gives us a simple start to the obesity problem. The energy balance equation states that: energy intake – energy expenditure = weight status.[13] So, when people eat more calories than they burn, they gain weight, and excessive weight gain can lead to obesity. While there is no single factor that causes childhood obesity, "many complementary changes have simultaneously increased children's energy intake and decreased energy expenditure."[14] For example, a 2004 study showed that 30.3% of children ages 4-19 ate at least one fast food meal per day.[15] Also, in 2001, physical education classes were required for only 8% of elementary schools, 6.4% middle schools, and 5.8% high schools. Trends toward eating larger portions of unhealthy food and living a more sedentary life contribute to an unbalancing of the energy balance equation.

There are also larger trends in society that have contributed to an increase in obesity. In a study of possible causes of the childhood obesity epidemic, Anderson and Butcher identified multiple lifestyle trends beginning between 1980 and 1988 that persisted throughout the 1990s. These lifestyle trend changes include calorie-dense convenience foods and soft drinks becoming more readily available and advertised to children and an increase in dual-career or single-parent working families led to an increase in pre-pared and fast food consumption for convenience.[16] Furthermore, children became less active as and were less likely to walk to school and more likely to participate in sedentary activities such as watching television, playing video games, and using the computer.[17]

There are two risk factors dealing with obesity: environmental factors and genetic factors.[18] Between 25 and 40% of BMI is heritable.[19] Another way to categorize factors of obesity is between modifiable causes and non-modifiable causes. Modifiable causes can be

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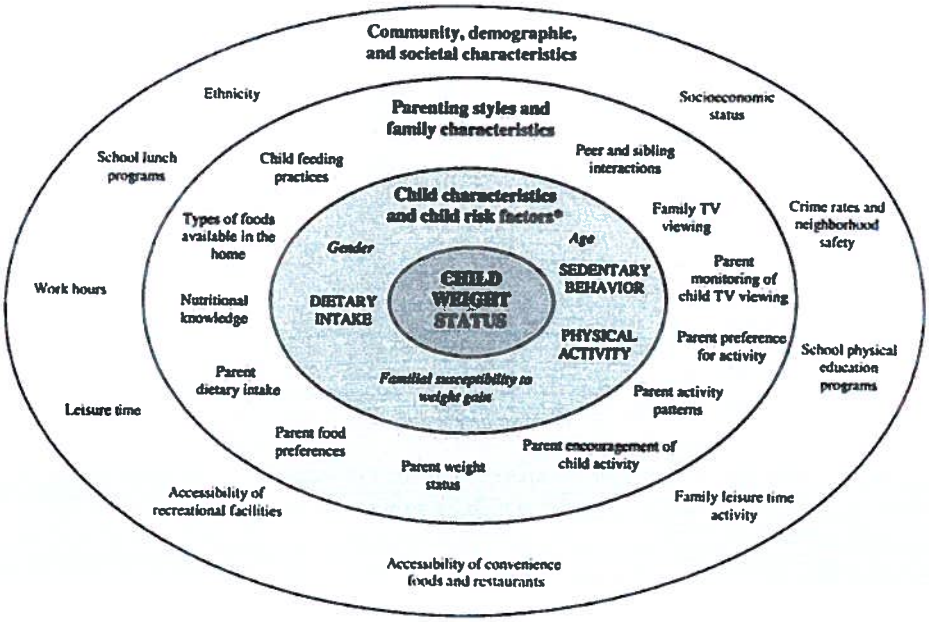
[13] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," 24.
[14] Patricia M. Anderson and Kristin F. Butcher, "Childhood Obesity: Trends and Potential Causes." *Childhood Obesity* 16.1 (2006): 19-46. Web. 14 Dec. 2013.
[15] Laure DeMattia and Shannon L. Denney, 90.
[16] Patricia M. Anderson and Kristin F. Butcher, 38.
[17] Ibid.
[18] Katie Charles.
[19] Patricia M. Anderson and Kristin F. Butcher, 24.

changed, such as levels of physical activity, sedentary behaviors, socio-economic status, eating habits, and environmental factors.[20] Non-modifiable causes are unchangeable, and include genetics.[21]



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All of these factors come together in the Ecological Model of Childhood Overweight, which was developed by University at Albany and Pennsylvania State University researchers in 2001 and looks at the combined effects of multiple factors that causes childhood obesity.[23] The first system that influences a child's weight status in the concentric model is the child's genetic environment which includes gender, age, and familial susceptibility to weight gain.[24] The next system is parenting styles and family characteristics that include child feeding practices, nutritional knowledge, family TV viewing, parent activity patterns, among others.[25] The outermost system is community, demographic, and societal characteristics including ethnicity, school lunch programs, accessibility of recreational facilities, school physical education programs, and family leisure time activity.[26] This model brings community factors into the discussion of childhood obesity, and the authors argue that a "coordinated community approach

[20] Dolores A. Stegelin, 9.
[21] Ibid.
[22] Laure DeMattia and Shannon L. Denney, 86.
[23] Ibid.
[24] Ibid.
[25] Ibid.
[26] Ibid.

to obesity intervention is often the missing component necessary to supporting lifestyle changes that influence childhood obesity."[27]

National Numbers

In addition to health and social consequences of childhood obesity, there are also economic costs associated with not confronting the issue of obesity. The national direct costs associated with childhood obesity include "annual prescription drug, emergency room, and outpatient costs" is $14.1 billion with additional inpatient costs of $237.6 million.[28] For adults, direct costs of treating obesity-related illness are about $147 annually, and indirect costs in the labor market include "obesity-related job absenteeism total $4.3 billion annually. Also, obesity is associated with lower productivity while at work, which totals $506 per obese worker per year."[29]

While some may argue that childhood obesity should be a private matter that individual people and families deal with, the truth of the matter is that the costs associated with obesity affect all taxpayers. According to the Center for Disease Control, "75% of total health care expenditures are associated with treating chronic diseases," many of which are caused by childhood obesity.[30] In 2008, obesity-related illness cost Medicare $19.7 billion and cost Medicaid $8 billion; furthermore, private health insurance plans paid $49 billion to treat obesity-related illnesses.[31] Even though obesity affects individuals, the costs associated with it are burdening all taxpayers. As overweight and obese children grow up, "their ability to care for themselves and live independently will decrease, their chronic medical conditions will increase, and they will incur greater health care costs compared to their normal weight peers."[32]

It has been proven through research that early intervention and prevention of childhood obesity are both more effective and less costly than treating adolescent or adult obesity.[33] This idea is reflected in comparing interventions and treatments in terms of cost per quality-adjusted life-year (QALY) saved. The Texas-based program, Coordinated Approach to Child Health (CATCH), an obesity intervention program for elementary schools, has an estimated cost of

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[27] Ibid., 87.
[28] John Cawley, "The Economics of Childhood Obesity." *Health Affairs* 29.3 (2010): 364-71. Web. 21 Dec. 2013.
[29] Ibid., 366.
[30] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," 3.
[31] John Cawley, 366.
[32] Laure DeMattia and Shannon L. Denney, 84.
[33] Ibid., 95.

$900 per QALY saved.[34] However, Xenical, an anti-obesity drug, has an estimated cost of $8,327 per QALY saved, and Wheeling Walks, a community campaign to encourage more sedentary adults to walk more, cost about $14,286 per QALY saved.[35] As far as being cost effective, it is better to introduce intervention and prevention early.

Michigan Numbers

The Overweight and Obesity in Michigan: Surveillance Update 2011 published by the Michigan Department of Community Health (MDCH) and Michigan's Nutrition, Physical Activity and Obesity Program (MiNPAO) reported data on adult and childhood obesity and overweight. As of the report's publication in 2011, Michigan had the 10th highest prevalence of obesity of all 50 states.[36] In 2009, 30% of Michigan adults were obese and 11.9% of Michigan youth was obese.[37] When breaking down the data on adult obesity by race, 42.6% of Hispanics, 41.6% of Blacks, and 28.7% of Whites were considered obese.[38] For children, 10.9% of Hispanics, 18.2% of Blacks, and 10.3% of Whites were considered obese.[39]

The data shows that many Michigan children have unhealthy habits that are proven to cause obesity. A majority of children do not eat enough nutritious food; only 80% of Michigan youth consumed adequate (5 or more) servings of fruits and vegetables each day.[40] Also, many children do not exercise an adequate amount. It was reported that only 31% of Michigan children participated in physical education classes daily and only 47% of Michigan youth were physically active for at least 60 minutes per day for at least five days of the week.[41] In 2011, 13% of Michigan high school students were obese, compared to the national average of 12.1%.[42] It was reported in the *Health and Wellness 4 x 4 Plan* in 2012 that 32% of Michigan adults and

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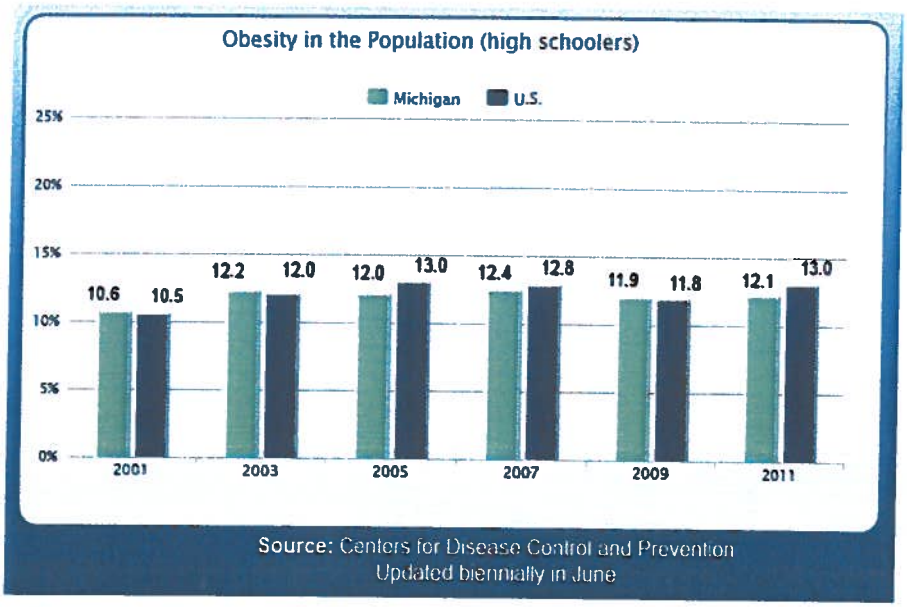
[34] John Cawley, 367.
[35] Ibid.
[36] "Overweight and Obesity in Michigan: Surveillance Update 2011," *michigan.gov*. MDCH & MiNPAO, 2011. Web. 21 Nov. 2013. <http://www.michigan.gov/documents/mdch/Overweight_and_Obesity_in_Michigan_Surveillance_Update_2011_432811_7.pdf>.
[37] Ibid., 3-6.
[38] Ibid., 4.
[39] Ibid., 7.
[40] Ibid., 6.
[41] Ibid., 6.
[42] "Obesity in the Population (high schoolers)," *Michigan.gov*. Mi Dashboard, n.d. Web. 3 Jan. 2014. <http://www.michigan.gov/midashboard/0,4624,7-256-59026_59029_59121---,00.html>.

17% of its youth are obese.[43] A report by Trust for America's Health and the Robert Wood Johnson Foundation projected that Michigan's obesity rate would nearly double to 59.4% in twenty years.[44]



[45]

The *Health and Wellness 4 x 4 Plan* estimated that if Michiganders reduced their BMI rates to lower levels, Michigan could save over $13 billion annually in reduced health care costs.[46] In 2011, Michigan spent nearly $3 billion in medical costs related to obesity.[47] A report done by the Center for Healthcare Research & Transformation (CHRT), a partnership between the University of Michigan and Blue Cross Blue Shield of Michigan looked at 2010 data to determine how weight category affected health care costs for adults covered by Blue Cross Blue Shield of Michigan. The average annual health care costs of a healthy weight person was $3,722, while the average annual health care costs of a severely obese person was $7,117.[48]

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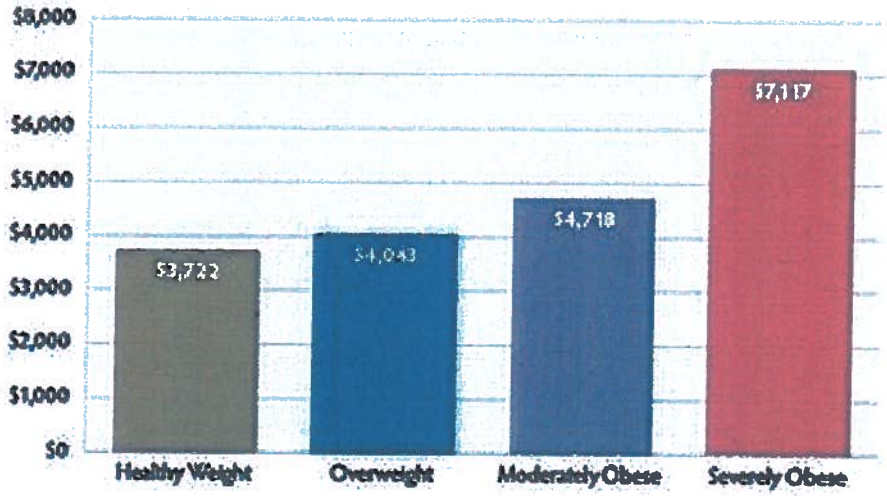
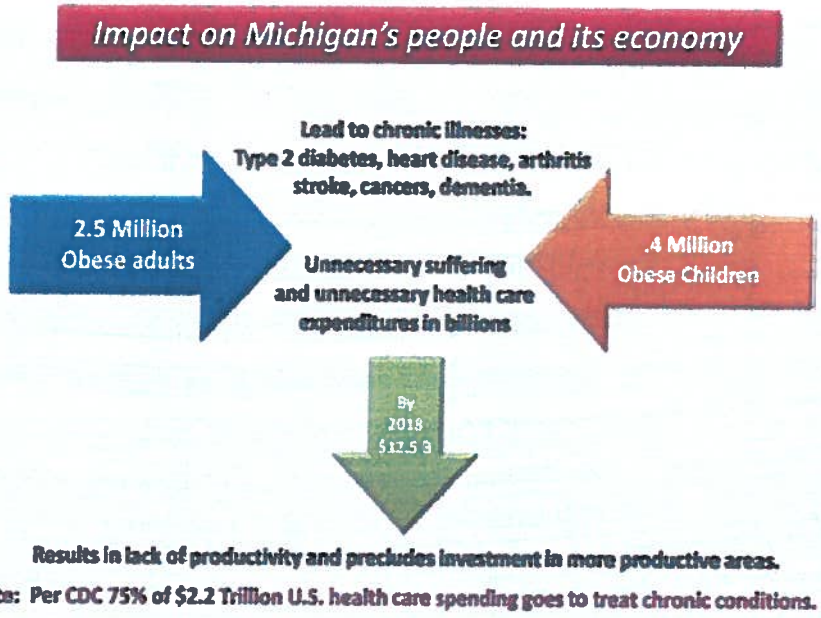
[43] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," 1.
[44] Sue Thoms, "Michigan on track to hit almost 60 percent obesity rate in 20 years, report shows." *MLive.com* Sept. 2012. Web. 22 Nov. 2013.
<http://www.mlive.com/health/index.ssf/2012/09/michigan_on_track_to_hit_almos.html>.
[45] "Obesity in the Population (high schoolers)"
[46] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," 4.
[47] Melissa Anders, "Report: Severely obese spend nearly twice as much on health care than healthy weight individuals." *MLive.com* 30 Jan. 2014. Web. 30 Jan. 2014.
<http://www.mlive.com/business/index.ssf/2014/01/report_severely_obese_spend_ne.html>.
[48] Ibid.

FIGURE 5

Average Annual Health Care Costs per Person, by Weight Category, BCBSM, 2010



[49]



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[49] Ibid.

[50] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," 3.

Current Michigan initiatives

MDCH hosted the Michigan Call to Action to Reduce and Prevent Obesity Summit in Lansing on September 21, 2011 which brought together 500 stakeholders in business, education, healthcare, government, foundations, and the community.[51] From the summit, five overarching recommendations were published: 1) develop a statewide healthy living campaign, 2) support existing and develop new community coalitions, 3) create incentives to encourage healthy choices, 4) create disincentives to discourage unhealthy choices, and 5) provide resources for implementation.[52] MDCH took these recommendations into consideration before publishing its *Michigan Health and Wellness 4 x 4 Plan* in June 2012, announcing a plan on obesity prevention to be implemented between 2012 and 2017.[53]

The goal of the *Michigan Health and Wellness 4 x 4 Plan* is "for every Michigander to adopt health as a personal core value" by utilizing the 4 x 4 tool to maintain four health measures at healthy levels through practicing four healthy behaviors.[54] The four health measures this plan focuses on are body mass index (BMI), blood pressure, cholesterol level, and blood sugar/glucose level.[55] The four suggested healthy behaviors are: maintain a healthy diet, engage in regular exercise, get an annual physical exam, and avoid all tobacco use.[56] The *4 x 4 Plan* emphasizes collaboration between public and private partnerships. Its strategies include "a multimedia campaign, deployment of coalitions, and external partnerships to help the coalitions implement the plan."[57]

In addition to the *4 x 4 Plan*, Michigan has other health initiatives, showing that as a state we have labeled health and eliminating childhood obesity as a priority. Michigan's Nutrition, Physical Activity and Obesity Program (MiNPAO) works to prevent and control obesity and chronic diseases through healthy eating and exercising (MiNPAO). MiNPAO targets six goals: increase physical activity, increase consumption of fruits and vegetables, decrease consumption of sugary drinks, increase breastfeeding initiation, decrease consumption of high-energy-dense

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[51] "Michigan Call to Action to Reduce and Prevent Obesity Summit," *Michigan.gov*. MDCH, 2011. Web. 3 Jan. 2014. <http://www.michigan.gov/mdch/0,4612,7-132-63157_59213-262855--,00.html>.
[52] "Michigan Call to Action to Reduce and Prevent Obesity, Obesity Summit: Work Group Recommendations." *Michigan.gov*. Public Sector Consultants, Inc., 8 Nov. 2011. Web. 10 Dec. 2013. <http://www.michigan.gov/documents/mdch/Obesity_Summit_Summary_Final_Report_375388_7.pdf>.
[53] "Our Health Begins with: The Michigan Health and Wellness 4 x 4 Plan," iii.
[54] Ibid., 1.
[55] Ibid.
[56] Ibid.
[57] Ibid.

foods, and decrease amount of television watching (MiNPAO). MiNPAO sponsors four programs: Building Healthy Communities, Breastfeeding, Child Care, and Faith-Based Projects. Another Michigan health initiative is Michigan's Nutrition Standards which is a list of criteria for food and beverages available to students during school and at school related functions, based on national standards.[58] These standards were approved by the Michigan Department of Education on October 12, 2010.[59]

Real Risks and Personal Health

Lessons Learned from Proven Strategies

Overarching Ideas on Intervention

1. Lifelong habits can form as early as 3 or 4 years old.[60]
2. Three critical areas of intervention are nutrition and environment, level of physical activity, and psychological support and intervention.[61]
3. *Preventing Childhood Obesity, Health in the Balance* (2004): "we have a greater chance of success in addressing the childhood obesity epidemic if public, private, and voluntary organizations would combine and share respective resources to create a coordinated and sustained effort."[62]

Pilot Family-Centered Invention Program in Head Start

1. During development of the intervention program, parents were involved and were treated as "experts" with a unique set of knowledge.[63]
2. The four key components of this program were a health communication campaign, letters mailed home, informal nutritional counseling sessions, and parent workshops administered by local organizations.[64]

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[58] "Michigan Nutrition Standards," *Michigan.gov*. MDCH, Oct. 2010. Web. 10 Dec. 2013. <http://michigan.gov/mdch/0,4612,7-132-2940_2955_2959_58773-261516--,00.html>.
[59] "Michigan Nutrition Standards," 35.
[60] Hu, Winnie. "Crayons Down. Now Dig Into That Healthful Parfait." *New York Times* 13 Nov. 2013. Web. 27 Nov. 2013. <http://www.nytimes.com/2013/11/14/nyregion/before-children-can-even-spell-teaching-them-healthier-eating.html?ref=education>.
[61] Dolores A. Stegelin, 8.
[62] Laure DeMattia and Shannon L. Denney, 85.
[63] Kirsten K. Davison, Janine M. Jurkowski, Kaigang Li, Sibylle Kranz, and Hal A. Lawson, "A childhood obesity intervention developed by families for families: results from a pilot study." *International Journal of Behavorial Nutrition and Physical Activity* 10.3 (2013): 1-11. Web. 27 Nov. 2013.
[64] Ibid., 4.

3. At the end of the pilot study, parents reported a "significantly great self-efficacy to promote healthy eating in children and increased support for children's physical activity."[65]
4. Other results of the study included improvements in rate of obesity, light physical activity, daily television watching, and dietary intake.[66]

1. **Real Risks: A multimedia campaign creating a stronger sense of urgency to enact change now**

Even though childhood obesity is a rising epidemic, with consequences that reduce a person's quality of life and can even lead to deadly diseases, many people do not consider it seriously enough as a problem. For example, "although 83 percent of New York State residents agree that childhood obesity is a major problem, more than a third refused to pay even $10 a year in higher taxes to cut childhood obesity in half."[67] A 2007 national poll showed that while 99% of Americans polled believed exercise is necessary to preserve health, less than half of them get the recommended amount of physical activity per day.[68] While obesity has been proven to be a top-ranking health problem and costly for citizens, there is still a disconnect between public agreement that obesity is a problem and public willingness to pay for and/or work toward a solution. If we hope to eliminate childhood obesity, we must create a higher sense of urgency when dealing with its treatment and prevention.

Modeling a multimedia campaign on the dangers of childhood obesity and its negative effects on quality of life, with resources to take action after the national "Tips from Former Smokers" (Tips) campaign would help create that sense of urgency. Michigan should craft a campaign that shows the negative effects of childhood obesity on children and the adults they grow up to be, as well as positive success stories of formerly obese people who got healthy. Advertisements could feature people who suffer from heart disease, diabetes, and other obesity-related illnesses as well as individuals and families who are healthy through eating right and exercising regularly. These advertisements should include information on resources about obesity prevention and treatment. For its multimedia campaign, Michigan needs to create a

[65] Ibid., 1.
[66] Ibid.
[67] John Cawley, 367.
[68] Laure DeMattia and Shannon L. Denney, 85.

singular state-wide online resource center for obesity prevention and treatment on the state website.

Tips was funded through the Prevention and Public Health Fund (PPHF), which was created by Section 4002 of the Affordable Care Act. PPHF must be used "to provide for expanded and sustained national investment in prevention and public health programs to improve health and help restrain the rate of growth in private and public health care costs."[69] Already $2.25 billion has been allocated for "community prevention, clinical prevention, public health infrastructure and training, and research and tracking.[70] Funds have already been used to help build public health infrastructure at the state and local level. Michigan should work to secure funding through the PPHF for its multimedia campaign, as well as secure private funding from businesses, obesity prevention initiatives at hospitals, and other organizations focused on eliminating childhood obesity.

Run by US Centers for Disease Control and Prevention (CDC), Tips was the first federally funded, national anti-smoking, mass-media education campaign.[71] This campaign included televised commercials, and radio, print, billboard, and digital and website advertisements, including Spanish versions that featured emotional true stories told by former smokers and included information on resources for smokers who wanted to quit.[72] Tips ran for 12 weeks, and showed great success. A study done on the campaign showed there was an increase in quit attempts, abstinence after quit attempt, and prevalence of people talking with friends and family about the dangers of smoking.[73] Furthermore, "in view of the $54 million campaign development, implementation, and evaluation costs, this estimate suggests a campaign-related cost per life-year saved of less than $200 before discounting, ranking Tips among the most cost-effective preventive interventions."[74]

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[69] "Prevention and Public Health Fund." *American Public Health Association*. ALPHA, n.d. Web. 24 Jan. 2014.
[70] Ibid.
[71] Tim McAfee, Kevin C. Davis, Robert L. Alexander, Terry F. Pechacek, and Rebecca Bunnell, "Effect of the first federally funded US antismoking national media campaign." *The Lancet* (2013): 2003-11. Web. 24 Jan. 2014.
[72] Ibid., 2003-4.
[73] Ibid., 2008.
[74] Ibid.

2. **Personal Health: One message on health promotion for the State of Michigan.**

Michigan and its political leaders, and well as leaders in the community, have identified that childhood obesity is a problem and have proven their commitment to the issue. As a state, we have some strong foundational programs to combat obesity and childhood obesity. Moving forward, it is important that those programs come together to support their shared goals. Right now, because there are multiple programs and initiatives in Michigan to combat obesity, there is not one single, strong message to our citizens. For example, the 4 x 4 Plan identifies four goals for healthy living, while the MiNPAO lists six goals for reducing obesity. Representatives from these initiatives should work together to align their goals and their efforts, so that the fight against childhood obesity in Michigan is more cohesive. All individual efforts to fight childhood obesity should unite under one Michigan-wide message on health.

After a more cohesive message on health promotion for Michigan has been set, it is crucial that that message reaches the public. I had no idea some of these health initiatives were existed before I began my research, which means there are probably other Michiganders who are not aware of these efforts. There should be a campaign for a healthier Michigan based on a more unified message of health promotion; that campaign should focus on three critical areas of health intervention: nutrition, physical activity, and psychological support and three critical populations of focus: early childcare programs, K-12 schools, and parents and adults in the community. While targeting these three area of health intervention and three populations of focus, it is important to use public-private partnerships and community involvement and engagement to promote and work toward Michigan's health goals. Involving community staples including businesses, hospitals, community centers, and libraries will expand the fight on obesity to that key third system in the Ecological Model of Childhood Overweight—the community. A child's obesity is not only a result of his or her genetics and environment; it is also a result of the message and resources available in the greater community.

3. **Early Intervention: Engage schools and Pre-K programs in the mission to eliminate childhood obesity**

Early Child Education

For early education, Head Start and Great Start preschool programs would be an ideal location to implement a curriculum on a healthy and active lifestyle. Because of the evidence that children can form habits as early as 3-6 years old, it is important to present information on health and nutrition as early as possible. Also, Head Start looks at a child's education and development holistically, so health and nutrition of its students is already a part of the program. Therefore, Michigan legislators should work with current Head Start and Great Start teachers to craft a Michigan-wide early education curriculum to introduce health and wellness that fits under our state's unified message and health goals. This curriculum should be available online, so that parents who choose other venues for early childcare have the tools needed to introduce obesity preventing behaviors to their children at their discretion. Also, because there is a strong parent interaction with Head Start programs, this gives teachers and administrators the opportunity to empower parents to continue healthy behaviors that students learn in class at home as well. In this year's State of the State address, Gov. Rick Snyder identified early education as a priority in Michigan, and pledged to invest $65 million more for free Pre-K for low- and moderate-income students.[75] Snyder announced that "we're going to make it a no-wait state for preschool education in the state of Michigan."[76] Now that the governor has declared investment in and access to early education a priority in Michigan, there is a lot of state-wide focus on Pre-K programs. This offers a perfect opportunity to integrate health promotion into that investment.

K-12 Schools

A. Schools are an important center for health promotion, because students spend a large portion of their day at school, and have a "triple opportunity"[77] through the classroom, recess/gym class, and the cafeteria to promote healthy eating and physical activity. At school, students are surrounded by their peers and teachers are surrounded by their colleagues, which can serve as a supportive environment with the social and psychological supports needed to enact intervention.

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[75] "Snyder's State of the State filled with topics tackled by Bridge," *Bridge Magazine* 18 Jan. 2014. Web. 30 Jan. 2014. <http://bridgemi.com/2014/01/snyders-state-of-the-state-filled-with-topics-tackled-by-bridge/>.
[76] Ibid.
[77] Laure DeMattia and Shannon L. Denney, 92.

1. Schools could use September, which is Childhood Obesity Awareness Month, as an opportunity to teach their students about health and nutrition, and empower them to live out what they learn. This would be similar to March is Reading Month. Health should always be a priority, but it could be a focus during September.
2. I recommend developing an award or recognition for schools that prove their commitment to health through promoting exercise and nutrition. Already schools can earn recognition as a Blue Ribbon or Green School, through meeting set criteria that promote academics or being environmentally friendly. Schools could earn recognition as a "Healthy School" if they meet a set of criteria that could include adopting Michigan's Nutrition Standards in the cafeteria and other health goals.

A. Most of the time a student is not at school, they are likely to be at home, which means that parents should be empowered to promote healthy living at home as well. If we hope to instill healthy values to students, it is important that the message they get from home is consistent with the message they get at school. Schools could include information and tips on health and nutrition in their newsletters, emails to parents, or other material they already send home to communicate with families. It is important to hold parents responsible for their children's health as well, because student health is too large a burden for schools to carry alone.

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