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Educating low-Sodium in the Classroom

A Paper Submitted in Partial Fulfillment of the Requirements for

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Educating Low-Sodium in the Classroom

Executive Summary

Heart disease in the United States is the number one cause of death and costs \$317 billion annually (Centers for Disease Control, [CDCa], 2018). Heart disease is usually considered an adult disease, but today we are finding that more children are developing symptoms of high blood pressure and sodium consumption is the link (Webb, 2017). Health care spending for hypertension is at an all-time high and is expected to triple over the next 20 years (Bussenius, Zeck, Williams, & Haynes-Ferere, 2018). The American Heart Association (AHA) states if sodium consumption was decreased to around 1,500 milligrams (mg) a day, blood pressure could decrease nationally by 25.6% and in turn would decrease overall health costs by \$26.2 billion (AHA, 2018). Today more children are at risk and some are currently being treated for high blood pressure. Most people are not aware of what sodium does, where it is found, or that it should be counted per milligrams daily. The CDCc (2018), suggests in order to make a change in heart health, we need stronger educational programs. If children on average ingest 3,255mg daily of sodium, then it is clear they need more education, support and influence on how to eat and choose foods with lower-sodium. If an implementation of low-sodium education could get into the classrooms, we can beat this disease process and the anticipated health-care spending increase can potentially dissipate. In children ages 6-18, how would a policy change by implementing elementary school education of a low-sodium diet, compare to children who do not receive education of low-sodium, affect their risk of hypertension, over three months?

Rationale

Blood pressure has been thought to peak in adulthood, but new research shows that blood pressure actually develops during childhood (Webb, 2017). Bringing low-sodium education into elementary school classrooms can help reduce hypertension significantly (Rios-Leyvraz et al., 2018). Preventing risk factors should be established during childhood (Nupponen et al., 2015). Children ages 6-18 are now the targets of the adult-disease of high blood pressure (Webb, 2017). Education initiatives alone have been found to be successful by 41% in lowering blood pressure in children and adolescents whereby also decreasing other risks for metabolic diseases in this population (Nupponen et al., 2015). Adding low-sodium education in elementary schools will provide the children lessons on how to become more aware of their health consequences, learn prevention measures, read nutrition labels, and know how to follow optimal health guidelines, thereby decreasing their risk factors of cardiovascular disease.

Literature Review

A strategized search was conducted to discover the correlation of blood pressure, sodium intake, and the risks of heart disease in the pediatric population. A literature search of Cinahl, PubMed, Medline, as well as the American Heart Association (AHA), Centers for Disease Control (CDC), Institute of Medicine (IOM), and several pediatric journals were also integrated to tie the research studies together with additional imperative data. The searches were restricted to provide the most recent statistics within the past five years. International studies were not the focus, but seemed to provide very pertinent and sound research with predicted outcomes.

The research revealed that eating healthy and decreasing sodium intake would reduce blood pressure. Damsgaard et al., (2014) provided a random control trial which focused on elementary students over a three to six-month period, those students in the intervention group

who consumed the provided nordic meal at school and received dietary education decreased their cardiovascular risk factors, abdominal fatness, and any risk of metabolic syndrome within that three-month duration. Nupponen et al., (2015) also shared results of their random control trial which monitored children in their infancy stage through 20-years of age, those in the intervention group were provided significant dietary education. Those children in the intervention group had lower cholesterol, lower blood pressure and better cardiovascular health in comparison to the control group. Nupponen et al., (2015) says preventing risk factors should be established during childhood. Leyvraz et al., (2018) shares results from their systematic review that not just diet, but sodium alone can reduce the risk of high blood pressure. Those children who decreased their sodium intake, decreased their blood pressure as well, which suggests healthy eating habits need to take place during childhood (Leyvraz et al., 2018). Children on average ingest 3,255mg of sodium a day, and high schoolers ingest 400-500mg more than the average; limiting sodium consumption in children to 1900mg to 2300mg a day would lower blood pressure risk factors (Webb, 2017). Ponzo et al., (2015) provided a cross sectional-study on snack consumption in adolescence and found pre-packaged snacks were almost half of adolescents' daily sodium intake. Blood pressures monitored during the study increased significantly, which were associated with pre-packaged snack consumption (Ponzo et al., 2015). Katta and Kokiwar (2018) completed a cohort study and found that other comorbidities like increased waist circumference, family history of high blood pressure, and age contributed to higher blood pressures. Katta and Kokiwar (2018) recommend children in the elementary school age group need regular screening, life-style modification education and how to prevent future risks of hypertension. Correia-Costa et al., (2016) showed from their cohort study higher salt intake was associated with increased systolic blood pressures in boys

ages 8-9, so a reduction in sodium and an increase in educational initiatives should be required. Khokhar et al., (2019) also provided a cohort study that while children are growing rapidly in their childhood years, development of eating habits also follow. Khokhar et al., (2019) also bring attention to the fact that parents who were provided low-sodium education had positive influence on their children as well, and low-sodium education had positive outcomes when it came to better salt-related knowledge and behaviors in those who participated. Rios-Leyvraz et al., (2018) shared their systematic review with meta-analysis and found a correlation of high sodium diets with elevated blood pressure in children. Educating low-sodium diet within elementary education is essential to support the risk and development of hypertension and heart disease later in life (Rios-Leyvraz et al., 2018). Rios-Leyvraz et al., (2018) also shared a significant outcome of “seventeen adolescents who had at least one risk factor for heart disease were provided sodium education, and within two months, they had a reduction in systolic and diastolic blood pressure” (p. 123).

Jardim et al., (2019) delivered a cohort study which displayed poor diets are the leading cause of cardiovascular risks, and that education enhancements need to be at the pinnacle of diet improvements in order to decrease cardiovascular disease. Bussenius et al., (2018) shared results from their descriptive study and found that hypertension is becoming more common in the pediatric population; this population does not receive routine blood pressures with annual well-child check-ups. Bussenius et al., (2018) collected data with smartphone technology and found “within the age group of preschool and school aged, 23.5% had pre-hypertension, 13.6% had stage 1 hypertension, 8.6% had stage 2 hypertension, and they recommend blood pressure screening should take place at age three” (p. 99). Gilmer et al., (2014) ran a cohort study and found increased health costs between those children who have been diagnosed with

hypertension and pre-hypertension in comparison to those children who have not been diagnosed with hypertension. Gilmer et al., (2014) cohort study, 42% of their included sample population of (N= 71,617) children ages 3-17 were found to have pre-hypertension, and 3% already had hypertension, 2% of those were already on blood pressure medications. Finally, He et al., (2015) provided results of their random control trial where they educated elementary schools on the importance of salt reduction, and within three and a half months, reduction of sodium intake in the control group decreased 1.9 grams/day in comparison to those in the control group who continued to ingest an average of 7.3 grams/day (p.1). This association of lowered sodium intake also showed a positive outcome in blood pressure measurements in that little timeframe (He et al., 2015). The global focus within these research studies shows that early education on low-sodium is paramount.

Stakeholders

The local representative would be the first step and gatekeeper to receive buy-in in order to make an impact with sodium reduction in the new elementary education proposal. Currently, in the global crisis, local issues, and the already-scheduled agendas for the coming election year, they are impossible to meet with. The influence and support from the local representative would help with the coercion needed to obtain buy-in from the school's superintendent and other gatekeepers. The current wellness and nutrition curricula focuses on "drug prevention, mental health, cardiopulmonary resuscitation, first-aid, and such" (Idaho Department of Education, 2010). Nutrition subjects are based on the discretion of the teachers' time to teach any such subject (Personal communication; Assistant Superintendent City of Coeur d'Alene, ID May, 2019). In order to establish a new educational course within the elementary education arena, a restructure of the health and wellness subject matter needs to ensue. Current policy guidelines

for nutrition education are found at:

https://cdn.ymaws.com/www.chronicdisease.org/resource/resmgr/school_health/Idaho_Wellness_Policy_Requir.pdf.

Another important stakeholder is the superintendent of the local district. The challenge is they do not share the medical standpoint of low-sodium importance, nor the urgency to put the change project in place. Other important stakeholders among the representative and superintendent are those who support the educational industry like: The school board; parents, teachers, administrators, paraprofessionals, students and such. These stakeholders would be provided a comprehensive, yet simple description of the national healthcare funding problem, healthcare disparities versus outcomes among the pediatric population, pertinent physiological issues to expect, the anticipated implementation steps, assistance in how to measure the outcomes, and the futuristic health goals for the children. This would provide them the resources and educational guidelines needed to support the program, and support the children and families.

Physicians, pediatricians, school nurses and delegates, and the local nursing school would be other important stakeholders within the change project. They would all be an asset to help with collecting the demographics and pertinent data, screening the children, evaluating of the data, organizing quarterly health clinics, monitoring food logs and assessment paraphernalia, following up with those children who are at risk by creating referral protocols, and ongoing assessments, measurements, and evaluation throughout the upcoming years. The promotional status of a million-heart initiative, which associates with the centers for disease control, offer resources for local stakeholders who participate in risk improvements of cardiovascular disease (Wright, Wall, Briss, & Schooley, 2012). The children who are also stakeholders, needs to receive the current information of the importance of lowering sodium and other prevention

measures in order to decrease their risk of cardiovascular disease. The children need to understand the importance of the subject matter, and how it can be detrimental to their health.

Implementation

The current national health promotion initiatives are not strong enough to make an impact in heart health. Currently the CDCs (CDCc, 2018) sodium reduction initiatives towards the American people are to observe statistics by tracking food labels and sodium content, monitoring sodium intake within nutrition databases, following surveys, collecting data on attitudes towards reducing sodium, and gathering and reporting data through behavioral risk factor surveillance systems (see this information at:

https://www.cdc.gov/salt/sodium_reduction_initiative.htm). These health-tracking proposals only collect data, they do not put health and wellness into place for American people or today's children (CDCc, 2018). And being there are no current effectual protocols implementing sodium education in schools today, what is needed now are stronger national educational programs to promote the health and wellness with regards to lowering cholesterol, decreasing sodium consumption, tobacco cessation, and the hope to eliminate trans-fats (Wright et al., 2012). Applying sodium education to elementary schools through high school would only support the evidence that a decrease of sodium would decrease the risk for hypertension, thereby decreasing healthcare dollars spent on heart disease.

Within the already existing policy guidelines by the Idaho Department of Education (2010), current guidelines need to be refreshed and heightened. A new protocol needs to be added in order to deliver the evidence-based practice supporting the needed education that low-sodium diets will overtime lower the risk of hypertension in school-aged children. With this awareness of the importance of low-sodium, the risk of cardiovascular disease should decline.

Time Table

Putting into place the low-sodium educational program: (see Appendix A).

1. Obtaining approvals: Anticipate one to two weeks to collect.
 - Initial meeting scheduled with the local representative for discussing necessary program changes, the cause and expected outcomes of sodium reduction, health-cost analysis versus health-cost spending, and over time showing the health savings would be paramount for their approval and support needed. This would provide the backing for the new change program and heighten the health and wellness curricula for our children in the classroom setting. Obtaining the representatives influence and support will also help receive buy-in from the superintendent.
 - Schedule a meeting to obtain agreements and sponsorship from the local superintendent's office and their support personnel. Present a detailed and comprehensive, yet simple educational portrait of the evidence-based research and expected outcomes from low-sodium education.
 - Construct parental/guardian consents for the quarterly blood pressure education, ongoing assessments and measurements, and possible physician referrals.
2. Identifying those Champions: Anticipate 1-3 weeks to meet with an discuss.
 - Identifying those educational stakeholders like: physical education teachers, class room teachers and paraprofessionals, teaching assistants, cafeteria employees, school administrators, counselors and the like. Providing them with the education they need would relay the importance when needing to reinforce information to the students on low-sodium foods. This education

provided to them would help implement the necessary changes like: Teaching the information, discussing and answering questions that the students may have. This would provide those enforcements, understanding, answers and new directions in order to assist the students completely. This would be done quarterly, or as requested by the stakeholders.

- School nurse and those nurse-delegated community volunteers would partner with the local nursing schools in their clinical settings to build and schedule quarterly health clinics, obtain consents, educate classrooms, provide blood pressure screenings, assist in scheduling for physician-referrals and pediatricians. A system for measuring and monitoring those students who are at risk, will ensure those children can be monitored and receive adequate follow-up and/or referrals with those physicians who are onboard.
- Collaborate with a physician or pediatrician's office to be involved with the new protocol to help with medical follow-up or other outside referrals needed. This would allow those students to become connected to a provider who do not yet see a primary care physician or pediatrician. The school nurse and designates would assist in follow-up visits with a provider until the parents/guardians could take over the follow-up visits and maintenance of risks and/or necessary treatments.

- Schedule a school-wide and community in-service to provide parents/ guardians, and other community stakeholders with the understanding of the evidence and the expected positive outcomes. Approval from parents and community members would also be paramount to help enforce eating habits at home. This would be done on a quarterly basis and would provide knowledge of low-sodium food selection, reading nutrition labels, and healthy choices for the students. This would be done quarterly, or as frequent as community stakeholders request.
3. Nutrition standards: Anticipate 1-2 weeks to create and collaborate with stakeholders.
- Encourage parents/ guardians to begin food logs with their students. Follow through with quarterly in-services to help with continued support to those families in need, and/or to reinforce the new education. Offer resources and assistance as needed and as frequent as requested to ensure success among the children.
 - Review and follow local and district-wide budgetary measures for cafeteria menus. This will take place per the district policies and protocols, and ultimately up to those administrators.
 - Remove salty snacks and drinks from vending machines in and around the schools. These would need to be eliminated, as well as their sugary counterparts and restocked with healthier low-to-no sodium options.
4. School-based wellness: Anticipate 1-3 weeks to discuss and obtain approvals.
- The cafeteria budget would eventually need to be revamped with lower-sodium choices. This will only follow those expectations from the already in-place health-promotion guideline of “nutrition promotion and promote student

wellness” (ID SDE, 2016). This would be at the discretion of the budgetary and strategic planning committees within the district.

- The blood pressure clinics would be quarterly throughout the year to collect as many students as possible during school hours. Information and consents would be sent home in advance to capture as many students as possible. All students would be monitored and screened for hypertension. Those students who have elevated blood pressures and/ or family history of hypertension would be monitored and followed. If there is concern for elevated blood pressures, the student would be given a referral and/ or scheduled visit with a participating medical provider. If the blood pressures are normal, the student would not need to be screened until the next scheduled clinic time.

5. Assessment: Anticipate 1-2 weeks to create strategy for assessments and ways to measure.

- Those students who needed a referral to a provider, would be provided more information and the follow-ups would then be through the doctor’s office and not the blood pressure clinic. Now that student is already plugged in appropriately to adequately follow-up, receive any medication interventions, and additional medical interventions as appropriate.
- Monthly sodium education would be educated by the classroom teachers with help of the nursing students to deliver the basic understanding appropriate for each grade-level. With each grade advancement, physiology and further teaching would be initiated and compounded. The object would be for the students to learn about the importance of low-sodium, be able to make healthy choices, discern

where sodium is and in what foods, prevention measures of high-sodium and the overall knowledge and the risks of hypertension. Overall objective would be to teach the children to completely understand how to prevent cardiovascular disease and be able to discern healthy low or no-sodium options.

6. Measurement: This will be throughout the assessments and ongoing.

- Data would be collected by the school nurse and selected delegates over the beginning months, during quarterly clinics, and ongoing. The data would be measured in graphs and counted especially for those students who needing referrals and additional interventions. Those students and families who need additional help with learning the material would be accommodated.
- During the quarterly blood pressure clinics, the Nurse and the volunteers would track those students who have risk factors, this would show a percentage of those children who have and are already at risk of hypertension. Food logs would be graded and evaluated looking for food selection improvements. Blood pressures would be expected to decline for those who ingest high-sodium. And of course, those who are captured and provided physician recommendations.
- Provide puzzles and games for assessments to see if understanding of risks becoming clearer.

7. Communication: Ongoing and throughout the entire process.

- Encourage feedback from the students, teachers, parents, and other stakeholders to enhance the elementary teachings and clinic resources. Feedback would be recommended by ways of surveys, general emails, mailed letters, and offer times to collaborate after the in-services.

In conclusion to the implementation steps, the federal government has passed down legislation requiring schools to participate and implement wellness policies which include “measurable goals, promotion of wellness based on evidence-based data, address nutrition guidelines, provide meals that follow federal meal programs, identify nutrition standards, marketing only those snacks which meet school nutrition standards, and address an evaluation conducted every three years to follow compliance” (ID SDE, 2016).

Data Collection and Success of the project

In children ages 6-18, how would a policy change by implementing elementary school education of a low sodium diet, compare to children who do not receive education of low sodium, affect their risk of hypertension, over one semester?

Data collection from short-term goals should be positive changes in food logs, positive changes in questionnaires and the understanding of low-sodium options among the students and parents. Along with different food selections in the cafeterias, understanding low-sodium from the home-front would be expected to show in the quality of homemade lunches versus those that are pre-packaged.

The step-by-step process that would evaluate and measure the success of the project.

1. A basic verbal presentation to the community, elementary, middle, and high schools, to parents, students and stakeholders would provide the concerns, facts, warnings, futuristic concerns, and solutions of high-sodium physiological effects. How to read nutrition labels would also be included to ensure understanding.
2. A basic survey for children, parents, and stakeholders would be provided to collect age groups, sex, and level of education. This ordinal-data, or Likert-scale survey would also collect basic understanding and measure scales of sodium-quantity ingested on an average day. These

would be filled out prior to the start of the program and throughout to measure understanding.

Suggested by Melnyk and Fineout-Overholt (2015), the ordinal data can help measure scales in the survey with descriptive formats. Questions like: I always eat pre-packaged foods, I sometimes eat prepackaged lunches, I rarely eat pre-packaged lunches, I never eat pre-packaged snacks and other similar questions. On a scale of 1-10, they would list their top 10 snacks and specify how often they eat them. This will help determine any trend later on as they transition their selections to from salty-snacks to healthier ones.

3. Food log templates would be created and handed out and re-collected to each and every person per classroom and school. These would be encouraged to be completed and evaluated on a quarterly basis. This would evaluate the success of eating better and healthier foods versus prepackaged, and salty snacks. Parents and students would be given a food-questionnaire about food and snack frequencies outside of regular meals. As Ponzo et al., (2015) provided their food-frequency questionnaire in their cohort study; this provided them descriptive diet qualities. Overtime, the evaluation would show salty-snack frequencies on the decline.

5. Finally, the descriptive and interval data of age per student, sex, blood pressure, heart rate, height, weight, body mass index (BMI), and family history of hypertension would be collected in order to help trend the data to determine a decline in blood pressures.

6. To ease the workload of graphing, quarterly meetings/ group conferences would be put together to show individual families how to track and trend their own data. For those families who need additional help, the school nurse and delegated staff, and possibly the local nursing school's clinical setting would meet with them to ensure success.

Within the goals of the project, in order to evaluate any success, finalizing and following those positive graphs and changes in food logs, positive changes in food questionnaires, positive trends in blood pressures, can help track a better understanding of the risks of high-sodium diets, as well as watching as the students, parents, and school stakeholders display diet changes towards healthier ways.

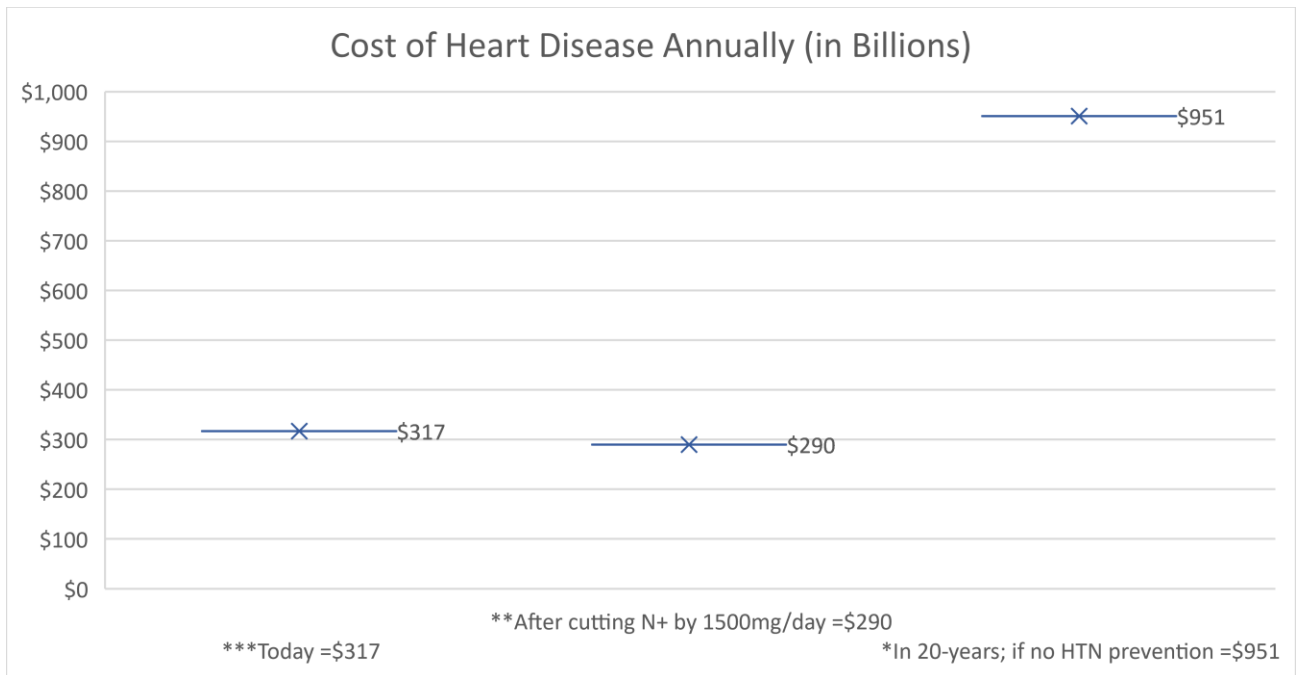
The quarterly surveys and food questionnaires would evaluate the basic grasp on how to read food-nutrition labels and the ability to apply that information. Perhaps the children and their parents would notice the how excessive sugars are bad, and now realizing that sodium is just as prominent in foods. Sodium is necessary for nerve impulses, muscle fiber contractility, and proper fluid balance, however children are ingesting more than is necessary (Harvard Health Publishing, 2016). Ponzio et al., (2015) completed a cohort study presenting that children and adolescents ingest over half of their sodium consumption in snacks alone, which on an average intake was around 3.1 grams/day.

Ultimately, the overall risk of hypertension and the understanding would be carried out by the general populous, and therefore the risk factors of hypertension and heart disease would decline. With healthier food options and a lower risk of cardiovascular disease, other risks of metabolic disease would also decline. Economics, healthcare spending, insurance reimbursement rates would also present a benefit.

Cost and Benefit

The cost benefit analysis is nearly impossible to determine from a benchmark project. Prevention is one way to help decrease the already accounted costs of heart disease in the United States. As stated in the executive summary, heart disease is usually considered an adult disease, but today we are finding that more children are developing symptoms of high blood pressure and

sodium consumption is the link (Webb, 2017). As in Figure 1, health care spending for hypertension is expected to triple over the next 20 years (Bussenius et al., 2018). The American Heart Association (AHA) states if sodium consumption was decreased to 1,500 mg a day, blood pressure could decrease nationally by 25.6% and in turn would decrease overall health costs by \$26.2 billion (AHA, 2018). With that said, a decrease of 500,000 to 1.2 million deaths over the next 10 years could be prevented (AHA, 2018).



Note: HTN= hypertension, N+ = sodium

(Figure 1: **AHA, (2018), *Bussenius et al., (2018), ***CDC, (2018,)

From the cost analysis from a cohort study by Jardim et al., (2019), it is shared that unhealthy diets are “responsible for 45% of all cardiometabolic disease (p. 2). From their study they determined that cardiometabolic disease costs “are associated with suboptimal diet, which highlight the need to implement diet policies to address health and economic burdens” (p. 2). If hypertension is expected to triple over the next 20 years, then prevention measures need to be enforced now, and what better way than to begin to educate the children to be aware of, and take

health accountability in the disease prevention and disease process. Costs to deal with preventive measures would be expected to take place as nursing school clinical hours and resource utilization, productive time of stakeholders' to ensure healthy practices, health clinic set up and purchasing sphygmomanometers, pamphlets and document materials, and the like will no way become close to what is already being spent annually in comparison. In the long run we will be saving health care dollars. As in Figure 1, we can see a small decline expected with prevention measures of eliminating sodium to 1500 grams per day suggested by AHA. In the years to come, the numbers would continue to decline as the spread of information and education would overtake the children today. In the coming generations, initiating these suggested prevention and education measures would cause the health costs overtime to significantly decline. Other health costs we would see on a downhill slide would be medication and prescription rates, decrease in adult-aged physician visits, decrease in potential futuristic readmissions, and also decreasing those risk factors of other metabolic disease processes.

Discussions and Results

Historically when children elementary to middle-school age were educated on the effects of smoking, overtime the percentage and prevalence of teenage smoking lessened. If a decrease in childhood smoking has been successful with smoking education, then dangers of high blood pressure linked to sodium can be just as successful (CDCb, Youth and Tobacco, 2018). The Institute of Medicine (IOM) (2015) mention that children are most impressionable in early states of childhood, they are insightful, intuitive, and as their minds develops, their cognitive functioning grows. IOM (2015) also talks about the early development and learning for young children and how nutrition has much to do with learning and cognition, "health is a determinant for learning, while education is a determinant for health" (p. 152). With regards to Asher (2019),

scoliosis screenings came into schools for annual screening programs after four different medical groups shared the concern by catching children with scoliosis early. With the research and current support, cardiovascular disease develops during childhood, and like scoliosis, those childhood years is the age to catch and treat in order to prevent it later. It was the U.S. preventative services task force which finally concluded that screenings would help (Asher, 2019). The reason these annual screenings are during school hours is to catch the population of children where this may be the only opportunity where they will hear it (Asher, 2019).

Results are expected to improve healthcare by enhancing cardiovascular risk prevention matters by bringing sodium-reduction education into the classrooms, like scoliosis exams during school will only help improve and prevent the disease later with that continual check in the elementary school years. As in Figure 1, the results are imperative for the prevention measures success versus no prevention measures at all, which currently that is the direction we are headed.

Sustainability, and Conclusion

The association between hypertension in children and sodium intake are associated with cardiovascular disease (Ponzo et al., 2015). This occurrence in children is increasing significantly worldwide, and sodium has been found to be a main reason why (Ponzo et al., 2015). Education initiatives alone have been successful for lowering the risk of blood pressure and other metabolic diseases by 41% (Nupponen et al., 2015). Heart disease has been the number one cause of death and disability in the United States for over 80 years (CDCd, 2007), and it is worsening. For sustaining education on low-sodium education to elementary schools is to rule out heart disease is paramount in order to see any changes for heart disease in the future. This education-program must come to fruition. On a global scale, high-sodium foods and snack sales have increased by 57% (Ponzo et. al., 2015). With the snack sales at an all-time high,

intervention must come in to play before it this heart disease worsens. Like Bussenius et al., (2018) mentions health care spending for hypertension is expected to triple over the next 20 years (Bussenius et al., 2018). In order to sustain this project, the local representative needs to support and back the change project, thereby obtaining buy-in from the superintendent so the low-sodium education curricula can be implemented into the elementary school classrooms. The flowchart, timetable and data collected above anticipates the local nursing school to partner with the school nurses and delegates, along with the community and other stakeholders to build and create annual cyclical, quarterly low-sodium education into the classrooms, schedule and continue quarterly blood pressure clinics on a cyclical schedule to ensure the community has the tools to acknowledge how to make healthier choices at home and for the children. The quarterly blood pressure and health clinics by the nursing schools would ensure the information would get out as scheduled. Over time, attendance, acceptance and change would happen. Overtime, with continual monitoring, education, and front-line knowledge, heart disease should decline in the years to come. The noticeable difference in future health care spending would be expected. And we would hope to see these changes for the health and wellness of the next generations. These changes are worth overcoming.

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Appendix A

