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Elaine's Project Research Summary

1. PURPOSE OF THE STUDY

The purpose of this study is to evaluate whether inner city school children (K4-8th grade) participating in an experiential educational school (Academy of Academy of Learning and Leadership) will improve their health and demonstrate a reverse in the national and local statistics for diabetes, obesity and physical exercise through the participation in gardening activities, increased programming in physical and outdoor education, and nutritional education.

Evaluation will be conducted by comparing baselines measurements to measurements taken during the school year. Specific values that will be followed include, BMI, blood glucose, overall school rank, and student surveys of the participating students at the school. Other recording will be: The Presidents Physical Fitness Exam, students will keep food logs and activity logs throughout the program to monitor changes and relate them to current curriculum. The goal is to see a change in each of the above stated levels indicating an improvement in overall health of the ALL community. Beyond impacting the health of the students at ALL, we will also be studying changes in the staff that would like to participate in the study. Beyond impacting the health of the students at ALL, we will also be studying changes in the staff that would like to participate in the study. We hope this study will effect a much larger community by effecting the health of students and they will become mentors and examples to their families and the perhaps the larger community.

We also hope that access to the garden will give the community the ability to actively participate and transform health and diet along with the children of ALL, but this anticipated result will only be anecdotal and not scientifically studied at this time.

In addition to bio-metric testing and physical fitness measurements we plan to include a self-monitoring aspect to the curriculum where the students record and report their activities (TV time, exercise time, etc), as well as their diet, monitoring vegetable, fruits, and type of fluid intake. More importantly these parameters would be assessed over time to determine change in activity, behavior and/or individual student attitude toward their health.

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2. HYPOTHESIS / SPECIFIC AIMS

The hypothesis is that experiential learning with the use of hands on gardening, diverse physical education, outdoor activities and educational curriculum on healthy choices, children can be taught to make healthy choices about their food intake and the amount of exercise they perform. Nutrition lessons in combination with planting and harvesting a vegetable and fruit garden will have a greater effect on children's vegetable and fruit preferences than nutrition education alone.

In addition, because the children do research in the community we expect the change in their behavior to potentially impact the lives of the teachers and their parents that they are in contact with daily. (this aspect will be only anecdotal, not proved by this study)

AIMS

The specific aims are to get children, and ALL staff to:
Eat more fruits and veggies
Decrease their intake of sugared beverages.
Increase their exercise to 150 min/week
Eat less fast and fatty food
Decrease their time in front of TV and computer screens
Increase their scores on the President's Physical Fitness Exam
Increase the choices for exercise for inner city kids
Learn how to prepare simple healthy meals
Decrease the number of fast food meals and increase family meals
All of this will lead to healthier lifestyles and long term health benefits.

3. BACKGROUND, SIGNIFICANCE, AND RATIONALE

Elaine's project is named in honor of Dr. Elaine Kohler, who worked with passionate dedication to improving the health of inner city children. Dr. Kohler is remembered within the community she served with deep respect for her advocacy and medical work in the fields of diabetes, obesity, heavy metal toxicity and mental health.

Elaine's Project is inspired by Dr. Kohler's legacy and will address the damaging and often deadly health effects that inner city economic, environmental and social conditions have on its resident children and their families, particularly through increased health services and educational programs emphasizing lifestyle, nutrition and access to healthy foods.

The goal of Elaine's Project is to create a replicable Project-Based Learning program for healthier lifestyles and living environments toward improving student and family health, building awareness and capacity with an emphasis on generational sustainability.

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Elaine's Project wants to become a model program for project based learning curriculum. To forward it as a model there is a need for substantiated research that supports the efficacy of the model. Elaine's Project chose the Academy of Learning and Leadership

(ALL) to begin this research, because they are situated in an inner city neighborhood with 97% of their population African American at poverty or below poverty levels, they are an Expeditionary Learning school. They are very committed to improving their children's and potentially the community's health through their teaching strategies. In addition, they were willing to include gardening and diverse physical activities not normally available at inner city schools as part of the classroom curriculum.

Significance and Rationale

The greater city of Milwaukee reflects the plight of its inner city citizens with 26% of all city residents living in poverty, making Milwaukee the seventh poorest in the country with 75% of public school children qualified for free or reduced meals. Significantly above the City average, 97% of Academy of Learning and Leadership students qualify for free or reduced meals. Forty-one percent of Milwaukee's children live in poverty ranking the city 4th highest in child poverty rate in the nation. Academy of Learning and Leadership lies within the heart of the inner city in zip codes 53205 and 53206 with a student population of 97% African American. Statistics worsen in this concentrated area where gangs, drug dealers, prostitutes and homeless live. The Academy estimates that over 00% of its students fall below the poverty line. The vast majority of Academy children live in single parent, women-headed, under-employed or unemployed households.

The economic depression in Milwaukee's urban core is more severe than the Great Depression, with 59% of African American males 16 years and older not employed. Income per taxpayer in the inner city remains less than half the level of metro Milwaukee as a whole and there has been no net job growth since 1994.

Access to fresh foods is limited by issues of transportation, expensive corner markets, lack of culturally relevant foods, and stressed food budgets among others. Milwaukee's inner city residents suffer disproportionately from overweight, obesity, and related health problems such as diabetes, hypertension, cardiovascular disease and some cancers. Risk levels for food insecurity have a cumulative effect with factors of poverty, race, single motherhood and living in central-city areas contributing to a 73% risk level for African Americans in inner city Milwaukee.

Recent studies by the National Research Initiative show that the cost of high-calorie foods are less likely to be affected by inflation and, on average, cost less than low-calorie foods. The study suggested that this may help explain the popularity of calorie-dense foods in food selection patterns among groups with limited economic resources. Access to local parks for physical activity and recreation is further limited by a fear of violence in the area.

Obesity –
Among the hardest hit are Hispanics, African Americans and people who did not complete high school, with obesity rates of 31%, 24% and 27%, respectively, according to the Centers for Disease Control and Prevention . Obesity occurs with endangered food budgets spent on low-cost processed foods, a lack of nutritional awareness and physical activity, as well as inadequate and expensive fresh food availability which can lead to health-related diseases such as Type II diabetes, sleep apnea and depression. One report shows a 26% obesity rate for those living below the poverty line and in just seven years Milwaukee's Children's Hospital of Wisconsin has experienced a 15-fold increase in children with Type II diabetes seeing patients as young as 6 years old. Some consequences of childhood and adolescent overweight are psychosocial. Overweight children and adolescents are targets of early and systematic social discrimination. The psychological stress of social stigmatization can cause low self-esteem which, in turn, can hinder academic and social functioning, and persist into adulthood. The Centers for Disease Control and Prevention suggests that the solutions for the obesity epidemic are better health education, more physical education and physical activity, and healthier school environments.

Diabetes –
The *2008 Burden of Diabetes in Wisconsin* is a report of the Wisconsin Diabetes Prevention and Control Program (DPCP) and the Wisconsin Division of Public Health. The report states that the cost of diabetes in children and adolescents is staggering. In 2007 for children and adolescents, direct costs were estimated at $70.5 million in Wisconsin. Type 2 diabetes is being diagnosed more frequently, particularly in American Indians, African Americans and Hispanic/Latino Americans. Six thousand children between the ages of 0-17 were diagnosed with diabetes in 2006 in Wisconsin. Diabetes is a lifelong disease. People with diabetes can be healthy in the same way as people without diabetes: by eating healthy food, being active, and controlling weight or losing weight if needed. In 2008, the Center for Disease Control reported that at the current increase of diabetes in the U.S.: one in three children born in the year 2000 forward would become diabetic. This rate escalates in poorer neighborhoods.

Teen Pregnancy and Healthy Children –
It is important to note that the changes made in the student behavior and preferences will translate into much greater changes for future generations. Given current teen pregnancy rates, outcomes from participation in a Project-Based Learning school will not only improve student health but protect current students and their future children. The first year ALL was open there were four pregnant students in the 7^{th} and 8^{th} grades. Forty percent of girls in Milwaukee will become pregnant before the age of 20. If we can educate the ALL students, we hope to impact the health of their future children, some of whom might be born while the students are still enrolled in the school. This effect will not be studied at this time; it is a spill-over effect that will be only anecdotal.

School Drop-out –
Nearly 70% of African American children entering kindergarten in Milwaukee will not graduate from high school. The major drop-out incidence occurs in the ninth grade. Our best opportunity to impact learning and change health behaviors is in elementary and middle school. School retention will be tracked to determine Elaine's Project impact on student drop-outs as well.

The FRESH program of UNESCO makes the case for nutrition interventions through schools stating that school health programs providing safe and low-cost health service interventions, such as screening and health education, are one of the most cost-effective investments a nation can make to improve the health of its citizens. Students in behaviorally-based health and nutrition education programs have shown significant improvements in levels of blood cholesterol, blood pressure and body fat. Supported by research presented in the World Health Organization's Information Series on School Health FRESH argues that schools can contribute to reducing nutrition-related problems by integrating nutrition interventions into a comprehensive approach to school health.

Elaine's Project is adapting the best practice methods illustrated by a program from the University of Michigan by Dr. Kim Eagle called "Project Healthy Schools" Elaine's Project will also draw upon the increasing adoption of garden-based models to create a place-specific program meeting the needs of the students.

4. DESIGN AND METHODS

A. Number of Human Participants.

The school has a population of 450 children and 60 school staff. We hope to get a participation rate of 50% of our students (225) 75% of our school staff (50). This is based on general participation we have had with the parents of ALL. The parental participation rate of 95% at three parent conferences a year will allow us the ability to provide excellent informed consent and therefore the participation of students. Staff enthusiasm for the health curriculum and garden project has been overwhelming, and the staff requested that they also be part of the study when it begins.

B. Drugs and Procedures

Health procedures will be a needle stick for blood glucose. Height and Weight will be taken for BMI and blood pressure. All of these will be conducted by Children's Hospital Health Services nurses.

5. PROVISION FOR THE PROTECTION OF PRIVACY OF SUBJECTS (confidentiality, health and financial risks) AND TO MAINTAIN THE CONFIDENTIALITY OF DATA.

Health Data will be kept in the Children's Hospital School based Nurses database. Only the nurses have access to this database. It is a database currently being used for an IRB controlled Pain study.

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6. PROVISIONS FOR MONITORING DATA TO ENSURE THE SAFETY OF SUBJECTS; AND ADDITIONAL SAFEGUARDS TO PROTECT THE RIGHTS AND WELFARE OF SUBJECTS WHO ARE LIKELY TO BE VULNERABLE.

The only paper documents will be attitude surveys. All surveys filled out by participants, will be coded by a unique number and no name will be on the surveys. All health data will be maintained in the School Based Nurses database program. Anyone who will be collecting data or inputting data will have finished the ethics course in human research. All statistical analysis will be done by an ethically certified statistician.

7. ANTICIPATED BENEFITS ASSOCIATED WITH THE PROTOCOL (value or desired outcome / advantage) TO HUMAN RESEARCH PARTICIPANTS AND SOCIETY (medical, psychosocial, altruistic)

Children and adults will learn to make healthier eating and drinking choices. Decrease their risk to develop diabetes, and obesity and increase their physical fitness and overall health awareness

8. STOPPING POINTS THAT WOULD NOT ALLOW THE STUDY TO CONTINUE AS PROPOSED (point in time when it has been determined that the objectives have been met; it has been determined that the objectives cannot be met or the accumulated data indicates that the risks exceed the benefits of the study)

The study is planned to continue for four years. If we find statistically significant changes in behavior and biometric results in less than this time we would stop the study.

9. IS THERE A DATA SAFETY MONITORING BOARD IN PLACE? WHO ARE IT'S MEMBERS? HOW OFTEN DO THEY MEET? (Any DSMB Reports should be sent to the IRB Office for review.)

There is no data safety monitoring board, since the data will be in the database that is the responsibility of Children's Hospital School based Nursing Services and only used by their staff.

10. CONSENTING PROCESS (include list of appropriately trained personnel who are involved with the process)

We will inform parents and students through the following ways:
Parent Teacher Conferences (3 times a year): At the Parent Teacher Conferences all parents/guardians must meet with their children's teachers, this includes the PE teacher, and health teacher. There will be a station that they will be present at and explain the project and the research. . The slide show and presentation on the Research will be presented with consent forms available for parents that want their children to be part of the research. In addition, the health educator, the physical fitness educator, the garden coordinator, the research coordinator and the school nurse (all who are CITI trained) will all be present to meet with the parents and explain Elaine's project and the research. The lead investigator, Camille Mortimore PhD will also be available for any questions.

Wellness Day each school year: These are afternoon into evening events where there will be games, physical activities, kids demos (tae bao, yoga etc) healthy snacks, nutritional information for students and their parents. The slide show and presentation on the Research will be presented with consent forms available for parents that want their children to be part of the research. The health educator, the physical fitness educator, the garden coordinator, the research coordinator and the school nurse (all who are CITI trained) will all be present to meet with the parents and explain Elaine's project and the research. The lead investigator, Camille Mortimore PhD will also be available for any questions.

Student sport day each school year: These are day long competitive and demonstration events where there will be sports, games, physical activities, kids demos (tae bao, yoga etc) healthy snacks, nutritional information for students and their parents. The slide show and presentation on the Research will be presented with consent forms available for parents that want their children to be part of the research. The health educator, the physical fitness educator, the garden coordinator, the research coordinator and the school nurse (all who are CITI trained) will all be present to meet with the parents and explain Elaine's project and the research. The lead investigator, Camille Mortimore PhD will also be available for any questions.

CITI Trained Staff

Children's Hospital nursing staff : will do all bio-metric testing. All CITI trained.
All surveys will be delivered by teachers who have completed the online ethical training : Citi program for human research. This includes;
Primary Investigator: Camille Mortimore PhD
Curriculum Coordinator: Penny Rossetto
Health Educator: Anna Downs
Research Coordinator: Mary Lou Lamonda
Garden Educator: Stacy Cushenberry
Physical Fitness Educator: Jeff Shields

All medical data input will be done by Children's Hospital nursing staff. Survey data will be input by database staff that has also completed the ethics training for human research.

11. PROCEDURES TO BE EMPLOYED IN ANALYZING DATA (including a power analysis) AND THE ANTICIPATED SIGNIFICANCE OF THE PROPOSED STUDY.

We will utilize the services of statisticians from the Medical College of Wisconsin for the data analysis.
Most recently, the "Children's Lifestyle and School-Performance Study," which appeared in the April issue of the *Journal of School Health*, found that children—regardless of their socioeconomic status—performed better in school if they increased their fruit and vegetable intake and decreased their caloric intake from fat.
Elaine's project is determined to be a model for project based schools to implement. This research study will provide evidence that we can turn the national trends, of diabetes, and obesity and create schools that promote healthy lifestyles in kids.

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12. FINANCIAL RELATIONSHIPS (sponsor; equity/stock with the company; is the investigator being paid for each subject and how much; is the institution being paid and how much)

There are no financial relationships in this study. ALL is funded to conduct this study through a foundation: John Michael Kohler fund that has no financial interests in this research

13. ADVERTISEMENTS / FLIERS (how will they be used / distributed)

Information will be provided at the Wellness Days, the Sports days and Parent Teacher Conferences. We also hope to do some garden and cooking activities with the students that we will invite the parents/guardians to. At each of these activities will be a slide presentation of Elaine's project and informational discussion on the benefits of the research. This will be conducted by a staff person that has completed the CITI training. There will also be an Elaine's project bulletin board in the school with ongoing information and student work posted to it.

14. BIBLIOGRAPHY (list pertinent literature references)

- ***Children's Lifestyle and School-Performance Study,*** Journal of School Health:
- ***Super Sized Kids, How to Rescue Your Kids from Obesity,*** Walt Larimore, MD, August 2005
- ***The more television children watch the less fruit and vegetables they eat***, Pediatrics Journal, 2003
- ***Schools Cutting Soda Lower Obesity, Emma Ross*** April 22, 2004, British Medical Journal
- ***How Zucchini Won Fifth-Grade Hearts*** (Cavaliere, D. (1987).. Children Today, 16(3), 18-21.)
- ***Garden-based nutrition education affects fruit and vegetable consumption in sixth-grade adolescents.*** McAleese, J. D. & L. L. Ranklin.,2007 Journal of the American Dietetic Association,
- ***Frequency of Eating Homegrown Produce Is Associated with Higher Intake among Parents and Their Preschool-Aged Children.*** Rural Missouri. Journal of the American Dietetic Association, Volume April 2007Marilyn S. Nanney, Sheldon Johnson, Michael Elliott and Debra Haire-Joshu.)
- ***Growing Minds: The Effect of a School Gardening Program on the Science Achievement of Elementary Students.*** ,Klemmer, C.D., Waliczek, T.M. & Zajicek, J.M. (2005). HortTechnology.
- **The Relationship of Child Body Mass Index to Parental Child Feeding Practices, Weight Perceptions and Personal Eating Behaviors Among 3- to 5-Year-Olds Attending Head Start** Wendy Bounds, Carol Connell, Mary Frances Nettles and Kristi Lofton , University of Southern Mississippi

Online Resources

Healthy Schools Program, http://healthiergeneration.org/schools.aspx

Healthy Schools Campaign, http://www.healthyschoolscampaign.org

Kids Gardening (helping grow healthy kids) http://www.kidsgardening.com/

Growing Schools:http://www.growingschools.org.uk/

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SchoolGarden Wizard, Resources for school gardens
http://www.schoolgardenwizard.org/
Center for Disease Control: Preventing Diabetes in Youth
cdc.gov/HealthyYouth/keystrategies/
Obesity Trends in USA http://www.cdc.gov/nccdphp/dnpa/obesity/trend/maps/index.htm
TV and your childs health http://www.med.umich.edu/1libr/yourchild/tv.htm#health