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ABSTRACT

INTRODUCTION
CHALK (Choosing Healthy and Active Lifestyles for Kids) uses an ecological model to decrease childhood obesity rates in Washington Heights/Inwood and Harlem, neighborhoods of predominately Latino population in which over 45% of elementary aged children are overweight and obese. The CHALK program is implemented in numerous settings (community, schools, faith based organizations and pediatric primary care practices) to ensure that healthy habit promotion touches all areas of a child’s life.

METHODS
The overall goal is to institute consistent, obesity prevention programming across a continuum between school, family, community, and clinical settings. The model uses and assesses the wellness environment of the partner organization and through a non-prescriptive approach develops sustainable and systemic changes in wellness.

FINDINGS
Over the course of 4 years, the CHALK program has been able to serve over 8,000 community residents with the potential of increasing partnerships including community faith-based organizations. 4 of the 7 partner schools have shown a decrease in BMI between Year 1 and Year 5 of the intervention based on NYC FITNESSGRAM data. Environmental scans illustrate that schools have been able to increase wellness awareness, implement wellness initiatives, and promote and incorporate policies into the school culture.

CONCLUSION
CHALK is an evidence-based, culturally and linguistically appropriate program developed to combat childhood obesity in Northern Manhattan that creates and fosters a wellness environment among CHALK partnerships. Through the last 5 years, the program has been able to demonstrate that it can successfully engage different community stakeholders to prevent, educate, and promote healthy lifestyles.
Final Report

1. Purpose of Project
The purpose of the project is to decrease childhood obesity rates in Washington Heights/Inwood and Harlem by disseminating a consistent obesity prevention social marketing campaign across the continuum of a child’s life. CHALK, employs an ecological model, considering all children living in urban, minority communities to be “high risk” and targeting the entire community; rather than focusing on individuals who are already overweight or obese. This approach facilitates true culture and behavior change on a population level, and avoids stigmatizing individuals while promoting life-long healthy habits.

Health Equity
The CHALK intervention addresses childhood obesity, a major health disparity in the United States and in particular, Washington Heights/Inwood, as it is predominantly a Latino population in which childhood obesity rates are the highest. The latest Department of Education FITNESSGRAM data, from school year 2012-2013, shows that 45% of children in grades K-8 in Washington Heights/Inwood are overweight or obese, compared to 39% in New York City. From a public health perspective, we use healthy habit dissemination and promotion to educate individuals in the community, schools and medical center waiting rooms. CHALK is founded on the 10 Healthy Habit social marketing campaign, which highlights small behaviors that can be easily adopted; the 10 Healthy Habits were adapted by community members of Northern Manhattan to ensure that their message is culturally and linguistically sensitive and appropriate. The CHALK program is implemented in numerous settings (community, schools, faith based organizations and primary care practices) to ensure that healthy habit promotion touches all areas of a child’s life. In the school setting, we provide on-site support for four years to help assess and implement sustainable changes to the wellness environment. In the community, we have partnered with two faith-based organizations to facilitate changes to wellness, provide seed funding to small community based organizations focusing on wellness, and promote the Healthy Habits through our presence at two farmers markets. Clinically, we screen children at well-child visits in our 4 pediatric outpatient practices with a series of questions related to the 10 Healthy Habits in order to determine the best treatment and education plan for each patient. These questions are built into the Electronic Medical Record, and determine key lifestyle behaviors including but not limited to, juice and soda consumption, hours of sleep per night, hours of screen time daily, minutes of physical activity daily, which can lead to childhood obesity. Thanks to renewed funding through the Healthy Tomorrows grant, CHALK plans to expand into the early childhood setting through our new CHALK Jr. program; we are currently piloting CHALK Jr. at an early childhood site in Washington Heights.

Cultural Competency and Linguistically Appropriate
All CHALK materials are created at the appropriate literacy level, and distributed in English and Spanish, as 82% of individuals in Washington Heights and Inwood are Hispanic according to the NYC Community Snapshot 2011. Parent/caregiver newsletters are written at a 5th grade reading level in English and Spanish while school staff newsletters are written only in English at an 8th grade reading level. All posted materials, including but not limited to, workshop flyers, posters, and letters, are written at a 5th grade reading level and distributed in English and
Spanish. The wording for all healthy habit messages were initially created by community focus groups to ensure cultural and linguistic competency.

To emphasize the importance of maintaining culture while consuming healthier foods, in 2016, we asked a local, young adult to create illustrations of each healthy habit depicting the habit in a culturally appropriate way. These illustrations were used in our 2017 CHALK calendar. Over 500 calendars were distributed to more than 10 CHALK partners.

2. Goals & Objectives

The overall goal of CHALK is to institute consistent, obesity prevention programming across a continuum between school, family, community, and clinical settings. The project, ultimately, hopes to decrease rates of obesity and related morbidity among children in Washington Heights/Inwood by promoting healthy lifestyles across this continuum.

CHALK aims to meet the following objectives:

Objective 1: To integrate the HSHF and CHALK social marketing messages in order to create a unified message called the Healthy Lifestyles Continuum (HLC) within one year of project startup. This objective is fully met.

We successfully integrated both programs at an administrative and content level. We now promote the 10 healthy habits in our intervention schools, our targeted community and in our pediatric outpatient primary care practices. We continue to evolve how we market the 10 Healthy Habit campaign to best suit the needs of the community; this year we are updating the caregiver newsletters and creating child-centric posters to depict the healthy habits through infographics.

Objective 2: To implement the HLC into all seven HSHF public elementary schools in Washington Heights and Harlem, targeting students, teachers and parents (years 2-5 of project start-up). This objective is fully met.

(Year 1) As stated in our timeline, in year 1 we concentrated on creating one set of messages and working on ensuring that all messages were culturally competent, health literate and linguistically appropriate. We also mapped all in-classroom material to the common core standards of the New York City Department of Education as to increase teacher and principal buy-in. Now that we have our school toolkit completed and posted on our website, all schools will be using a uniform set of health education material for the social marketing campaign and related activities.

(Year 2) All of our 14 schools (current and graduated) have implemented the HLC and are distributing the materials we developed in Year 1 on a monthly basis.
(Year 3) CHALK expanded the nutrition curriculum to the Middle School setting. The curriculum is mapped to Common Core Learning Standards in conjunction with Columbia University Teachers College.

(Year 4 & 5) CHALK continues to provide the HLC by integrating wellness into all aspects of the school’s agenda. Wellness council meetings are held quarterly or monthly at all seven schools to ensure all wellness projects, grants, and initiatives are achieved. Within year 5, the program has worked to embed the wellness council into the School Leadership Team (SLT) and Parent-Associations (PA) meetings.

**Objective 3: To create a product, based on the HLC, to help schools that lack funding devoted to obesity prevention, implement healthy lifestyles environmental changes within 2 years of project startup. (This will be done jointly with the New York Chapter 3 AAP School Health Committee.) This objective is fully met.**

(Year 1) We developed and completed our school toolkit. We posted it online for all schools to have access to it and have started to disseminate it across our partner programs in New York City. We realize that schools will need help in implementing this program and we hope that our involvement with the New York Chapter 3 AAP school health committee will help us achieve this objective. We have attended meetings and discussed ways in which we could engage pediatricians in this process.

(Year 2) In addition to the school toolkit developed and posted to our website in year 1, we have created a toolkit and videos that give in-depth training for our Just Move in-class exercise flash cards; the toolkit can be found on ASAP’s website (http://www.activeschoolsasap.org/node/213).

(Years 3 - 5) Using a train-the-trainer model, CHALK program coordinators have provided trainings for school staff in order to provide a sustainability plan. Coordinators have built a wellness council, a committee of key stakeholders, to engage the school around wellness. Additionally, all schools are supported by the Office of School Wellness Programs, a division of the Department of Health that monitors wellness programming at the schools.

**Objective 4: To ensure that HLC is integrated into all existing Community Pediatrics programs. This objective is fully met.**

(Year 1) All Community Pediatrics program managers and medical directors meet on a monthly basis. As we share our materials, a process is slowly evolving where CHALK is identified as the program providing obesity prevention health education and social marketing material to hospital and university programs alike. This process will be ongoing throughout the five years of the grant.

(Year 5) We have partnered with the Health Education and Adult Literacy (HEAL) and Reach out and Read (ROR) to create the Waiting Room as a Literacy and Learning Environment (WALLE)
program in which we provide health education resources to patients in the waiting room of the Washington Heights Family Health Center pediatric clinic.

(Year 5) Through a partnership with the New York Presbyterian Ambulatory Care Network nutrition department, we have established a fruit and vegetable distribution program in which patients receive a “prescription” for fruits and vegetables that are redeemable at the greenmarkets on 168th street and 175th street for ten dollars in fruit and vegetable coupons.

**Objective 5:** To train 30 faculty in the Division of General Pediatrics and 60 pediatric residents in implementing the HLC message in the clinical setting within one year of project start-up. This objective is fully met.

(Year 1) Dr. John Rausch, a faculty member in the Division of Child and Adolescent Health, has received a NYS grant to integrate clinical guidelines for overweight and obese children into our existing electronic health record. To accomplish this, he has instituted his program in two of the four clinical sites to study its impact. Together with these clinical efforts he has trained all faculty and residents at these two sites in the use of the CHALK healthy habit materials for counseling patients and families. The Health provider toolkit is online on our website. Training of all 60 pediatric residents and 30 faculty will occur in year two of the grant.

(Year 2) All 30 faculty have been trained. We have concentrated the efforts in the clinical setting to work on integrating clinical guidelines into the electronic health record. Now that this phase of the study is in data analysis, we will start training pediatric residents in the HLC as of next academic year. We request to revise our objective of training 60 pediatric residents to grant year 3. **Partially met, revised timeline for this objective.**

(Year 2) This grant year we have both reinforced training and trained new programs listed below. In subsequent grant years, we will continue to reinforce training and ensure pediatric residents and fellows receive HLC training. This year, we launched a program were our habit materials are delivered to the pediatric practices on a monthly basis.

a) Ambulatory Care Network Registered Dietitians  
b) Reach Out and Read Program Manager and volunteer training  
c) WIN for Health Community Health Worker training  
d) Division of Child and Adolescent Health Faculty training

(Year 3) All pediatric residents started receiving training on the HLC message in July 2014 and will continue until June 2015 until all are trained. **This goal has been met.**

(Year 3-5) In the past year, we have integrated pediatric resident trainings into the community pediatrics rotations. Each month, we train 1-5 residents on our 10 Healthy Habits promotion and how it can be incorporated into the well-child visit.
(Years 4 & 5) Monthly resident trainings have covered an array of topics that provide residents with appropriate methods to discuss childhood obesity and community resources for physical activity and food insecurity. We have collaborated with sister programs at New York Presbyterian Hospital, such as Turn2Us and Waiting Room as a Literacy and Learning Environment (WALLE), for programming and volunteer training to continue our HLC goal.

(Years 4 & 5) Training residents on CHALK materials are now embedded into the required community pediatrics residency training. All pediatric residents are trained on the HLC message on a monthly basis with 25 residents being trained each year.

(Please note that the Division has been renamed from “General Pediatrics” to the “Division Child and Adolescent Health.”)

3. Methodology
CHALK is an evidence-based, culturally and linguistically appropriate program developed to combat childhood obesity in Northern Manhattan; the program has been implemented and evaluated in schools, the community, and in the medical center of New York Presbyterian Ambulatory Care Network. Since 2008, the CHALK program has merged the school and community aspects of two separate programs to focus on one Healthy Lifestyles Continuum (HLC) thus providing unified efforts in addressing childhood obesity through the lens of the socio-ecological model. The program’s cornerstones include the CHALK toolkit and the 10 Healthy Habits. By Year 5, the program’s aims have successfully been met to promote and create systemic wellness changes within partner organizations.

CHALK in the schools is a four-year model in which a CHALK program coordinator is provided to collaborate with the school leadership on sustainable and systemic changes; we establish a wellness council with the aim of transferring ownership of projects and wellness goals throughout the intervention. Our role in the school is to offer wellness initiatives for the schools to choose from based on their interest, capacity, priorities, and needs of their community. Therefore, it is not prescriptive approach but rather a collaboration with school principals who choose goals and programming based on our menu of options. CHALK’s overall goal is to create and foster a wellness environment among all partnerships. We often facilitate wellness council meetings and assist in grant finding and resource connection opportunities. CHALK connects schools to the Office of School Wellness, which provides two grant opportunities including the School Wellness Continuation Grant and the Excellence in School Wellness Awards. Programming efforts includes Michelle Obama accredited “Just Move,” in-class physical activity program. Furthermore, by partnering with national, non-profit, and local organizations, we have been able to build a culture of wellness in our seven partner schools support by other programs and that can be sustained once CHALK is no longer on-site.

In the community, we focus on changing the food environment and on fostering physical activity through our work with the greenmarkets of Upper Manhattan, the distribution of mini-grants to community agencies, and our work with faith-based organizations. Through our partnership with GrowNYC, we facilitated the start of the West 168th greenmarket and now
have a presence at the greenmarket on 175th street. At the greenmarket on 168th street, we provide nutrition education to market customers and distribute greenmarket bucks (coupons to purchase fruits and vegetables). At the 175th street market, CHALK hosts various departments of New York Presbyterian Hospital and Columbia University Medical Center, such as diabetes and stroke prevention and dental health, to provide health education and resources to the market customers as well as distribute greenmarket bucks.

CHALK supports the development and growth of small non-profits through our mini-grant program. Each year we select up to ten recipients to receive $2,000 to implement a project focusing on one of the 10 healthy habits. Our aim is to prepare and support mini-grantees in developing programs that are evidence-based, sustainable, and able to secure future funding.

This year, CHALK has developed partnerships with two faith-based organizations located in Upper Manhattan. We have adapted the CHALK model to assess the wellness environment of the faith-based organization and through a non-prescriptive approach develop sustainable and systemic changes in wellness. One such example is the creation of wellness ministries at the church. Though this initiative is in its infancy, we have started to focus on increasing food accessibility through establishing sources of emergency food in low-resource areas.

CHALK has several areas of focus in the outpatient clinics of the Ambulatory Care Network of New York Presbyterian Hospital. We train medical residents with tools that clinicians can integrate into their practice, such as the use of motivational interviewing to approach conversations around obesity with patients and their families. We have partnered with the Health Education and Adult Literacy (HEAL) and Reach out and Read (ROR) to create the Waiting Room as a Literacy and Learning Environment (WALLE) program in which we provide health education resources and low cost community services to patients in the waiting room of the Washington Heights Family Health Center pediatric clinic. Lastly, we have partnered with the Ambulatory Care Network nutrition department to establish a fruit and vegetable distribution program in which patients receive a “prescription” for fruits and vegetables that are redeemable at the greenmarkets on 168th street and 175th street for ten dollars in fruit and vegetable coupons. As proposed in the grant application, screening for healthy lifestyle behaviors has been included in New York Presbyterian Hospital electronic health record. All pediatric residents receive training on identifying obese and overweight patients, methods to address obesity in a well-child visit, and resources to provide to their patients.

4. Evaluation
CHALK evaluation focuses on systemic environmental changes that empower our partner organizations to adopt and sustain wellness initiatives. CHALK has a rigorous process and outcome evaluation that includes the use of mixed-method evaluation instruments. CHALK’s environmental scan is a mixed-method survey that assesses the wellness environment in each school and faith-based organization. Our school based-survey has five components that analyze nutrition education and cafeteria environment, physical activity and recess, wellness coordination through the council, parent and community engagement, and finally staff education and workshops. This survey is completed by 10-12 school staff at the end of every
school year. Additionally, we complete end of year qualitative semi-structured interviews with leadership and stakeholders to plan for the next year of intervention and assess the highlights and challenges of the partnership. We reached 5,000 students, school staff personnel, and parents every year.

A similar evaluation method is used to assess faith-based organization partnership. The faith-based environmental scan is completed by church leadership and key stakeholders. Since collaboration efforts began in August of 2016, data is not yet available.

Community greenmarket evaluation focuses largely on total number of attendees and greenmarket bucks (fruit and vegetable coupon) distribution and redemption rates. In Year 5 alone, we reached over 2,000 people at the 168th and 175th greenmarkets. In the same year, we distributed 1,687 total (valued at over $3000 dollars) in greenmarket bucks and had a redemption rate of 88%. Year 5 of the grant, the program piloted a Prescription for Fruits and Vegetable Program in collaboration with clinical nutritionists. Within the three months of the program, over 60 patients redeemed their prescriptions worth $10 in greenmarket bucks.

Within other community partnerships, such as our mini-grant community program, we completed observations and interviews regarding implementation. Since 2012, 26 mini-grants were distributed to 18 organizations with each being awarded $2,000.

Program Impact
In total, we serve nearly 8,375 people in the community of Washington Heights and Inwood. We’ve reached nearly 5,000 students, families, and school staff through our school partnerships. We have a potential to reach 500 congregants in our new faith-based partnerships. Our mini-grants component has been able to reach nearly 500 community members this year and close to 2,000 community members since the program began. Within six months of the WALLE collaboration with the HEAL program, the resource help desk has been established in the pediatric waiting room and over 300 patients were referred by providers or have interacted with help desk volunteers. Lastly, tabling at the greenmarket has reached over 2,500 community members through raffling and greenmarket bucks distribution.

Among the school-based component, we have been able to show significant changes in representatives of the school wellness council and awareness of health changes throughout the school environment reflecting positive sustainable changes. The school environmental scan survey results found statistically significant changes (P<.05) in classroom physical activity; amount of vegetables served during lunch; representatives on the school wellness committees; and the number of certified physical education teachers. There was also a statistically significant difference in amount of juice offered at breakfast between high- and low-intensity schools. Ultimately, five of the seven schools have shown significant improvement on different competencies over time reflecting positive changes towards a healthy school environment based on the school’s individual need. Based on NYC FITNESSGRAM data, 4 of the 7 partner schools have shown a decrease in BMI between Year 1 and Year 5 of the intervention.
The CHALK clinical component has been able to increase motivational interviewing skills among pediatric residents that serve in the clinics of the Ambulatory Care Network. Other components such as the mini-grant and faith-based partnerships have yet to be evaluated.

The CHALK program has been able to demonstrate that it can successfully engage different community stakeholders to prevent, educate, and promote healthy lifestyles. The use of the socio-ecological framework throughout the CHALK program is essential in providing comprehensive wellness promotion and education to a socio-disadvantaged community. CHALK, a partnership between an academic medical center, a large hospital, and the surrounding community, offers a scalable and replicable model to combat childhood obesity at a community level.

The project has been successfully submitted to the Columbia University IRB and to the Department of Education IRB, and approved by both. In grant year 2, we submitted and received continuation approval from the NYC Department of Education’s IRB.

5. Results and Outcomes
The following tables sum up the program’s reach, including outcome measures and process measures.

Outcome Measures

<table>
<thead>
<tr>
<th>Desired Outcome</th>
<th>Measure</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Schools achieve &gt; 120 minutes physical activity/week</td>
<td>Sampling of in-class physical activity minutes; PE minutes</td>
<td>Average of 100 min/week</td>
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</tbody>
</table>
| Decreased school-wide BMI in intervention schools from Year 1 to Year 5 | NYC FITNESSGRAM Reports | PS 18: 9% decrease  
PS 28: 12% decrease  
PS 178: 2% decrease  
PS 278: 8.42% decrease  
PS 314 Muscota: 6% decrease  
PS 210: 20% increase  
PS 98: 2% increase |
| Schools create an environment that promotes physical activity & nutrition | Excellence in School Wellness Award level (NYC DOHMH)  
Mixed quantitative/qualitative environmental scan (pre/post) | 7 schools received awards and/or notable recognition from Year 1 – Year 5 |
### Implement a successful social marketing obesity prevention campaign

| Downloads of online toolkits; website hits/unique visitors; twitter stats |
| Adoption of program by other organizations |
| Average 150 website hits per month |
| Partnership for a Healthier NYC (Healthier Manhattan / Mt Sinai) |
| Office of School Wellness Programs- New York City Department of Education |

### Process Data

<table>
<thead>
<tr>
<th>Measure</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of school wellness council meetings</strong></td>
<td>Quarterly or monthly meetings held every school year at all 7 partnering schools</td>
</tr>
<tr>
<td><strong>Number of nutrition education lessons for members of the school community</strong></td>
<td>Monthly lessons for students and/or workshops for families at all 7 school sites from Year 1 to Year 5 through partnerships with other organizations (WITS, CookShop, City Harvest, etc.)</td>
</tr>
<tr>
<td><strong>Number of physical activity lessons, workshops and promotion events for the school community</strong></td>
<td>Monthly lessons for students, workshops for families, or professional developments for school staff at all 7 school sites from Year 1 to Year 5</td>
</tr>
<tr>
<td><strong>Number of parents/caregivers/community members who receive healthy habit materials</strong></td>
<td>~6000/month</td>
</tr>
<tr>
<td><strong>Number of school staff who receive staff wellness newsletter</strong></td>
<td>~460/month in intervention schools during academic year to 7 partner schools</td>
</tr>
<tr>
<td><strong>Number of teachers and teaching fellows trained in nutrition curriculum</strong></td>
<td>Teacher training in progress SY 15-16 7 Teaching fellows in 2012-13 academic year</td>
</tr>
<tr>
<td><strong>Number of medical providers and ancillary staff trained on healthy habits</strong></td>
<td>Monthly trainings for all pediatric residents in the Ambulatory Care pediatric clinics (~85 from Year 1 to Year 5)</td>
</tr>
</tbody>
</table>
Number of mini-grant recipients & Total $ distributed
Number of campaign participants/pledges signed Year 1 – Year 4

| Number of mini-grant recipients & Total $ distributed | 26 total mini-grants distributed to 18 organizations $52,000 YTD |
| Number of campaign participants/pledges signed Year 1 – Year 4 | ~40 |

6. Publications/Products


7. Dissemination/Utilization of Results
At the end of year 5, schools will be presented with a summary document of their accomplishments throughout the CHALK intervention. The program will continue to provide off-site support to ensure sustainability going forward.

Following the CHALK model, program leadership will plan to recruit a new cohort of schools and community partners to participate in the program as well as continue to examine changes and process measures. Best practices learned through our previous school partners will be adapted and applied to the new CHALK Jr. program (more details below).

8. Future Plans/Sustainability
The CHALK program has been able to provide a train-the-trainer model within and outside our partner network. Multiple partners are engaged in professional development to disseminate our message in an effort to build capacity within our community. Trainings are provided for partnering school staff, faith-based organizations, and other community-based organizations. Additionally, pediatrician training is now embedded into their required rotation with both pediatric residents and faculty learning about the best methods to approach overweight and obese patients as well as connecting patients with local community resources.

We have continued to successfully expand our program by partnering with faith-based organizations, develop our greenmarket and mini-grant programs, and develop new partnerships with neighborhood early childhood centers. To expand upon CHALK’s community component, a coordinator has worked closely with local faith-based organizations in Washington Heights and Inwood to implement the CHALK program in efforts to reduce the community’s prevalence of childhood obesity. Starting in June 2016, the program has hosted a table at the 175th market, which serves more residents and community members in the Washington Heights area. We have been working closely with partnering schools to ensure sustainability of the program by establishing wellness policies, focusing on environmental changes, such as providing healthier school food options, and incorporating wellness councils into the School Leadership Team (SLT). Our mini-grant program was developed to provide small non-profit organizations with seed money to expand their work. We will continue to distribute 10 mini-grants per year to community groups in order to build community capacity while promoting healthy habits and increasing the reach of our healthy habits campaign. Lastly, CHALK Jr., a program directly modeled off its parent program, will be implemented in 7 early
childhood centers starting in September 2017 – 2021 in order to combat childhood obesity at an earlier age. The CHALK Jr. program will be partially funded by a new Healthy Tomorrow’s Grant.

The Community Health Outreach department at the Ambulatory Care Network of New York Presbyterian Hospital has incorporated much of the CHALK budget into its operational budget.