

## **Statement of Need**

In the state of Virginia, obesity rates have been steadily rising for the last decade and longer.<sup>1</sup> Currently, 29.2% of Virginia's population is obese.<sup>1</sup> Meanwhile, approximately 30% of Virginia's children and adolescents, aged 10 to 17, are obese.<sup>1</sup> The Hampton Roads area, home of the Norfolk Naval Base and many thousands of military families, presents with a more densely populated and proportionally African American demographic profile than most of the state of Virginia.<sup>2</sup> Furthermore, the region has overall lower income levels than Virginia as a whole.<sup>2</sup> In the city of Norfolk, recent census reports show that 30.1% of the population under the age of 18 was living in poverty.<sup>3</sup> Unfortunately, these socioeconomic factors of income, poverty, and living situation can strongly negatively impact a child's health status.<sup>3</sup> A multitude of studies have shown that poor socioeconomic status is correlated with chronic health conditions, poorer diet, lower exercise levels, and excess weight.<sup>4,5,6</sup> Children are especially vulnerable to these risks and consequences due to the lack of control they have over living conditions, food choices, parental example, and surrounding community. Childhood obesity can profoundly affect a child's physical health, with such comorbidities as cardiovascular, orthopedic, neurological, pulmonary, and metabolic disorders.<sup>5</sup> It may also negatively impact a child's social and emotional well-being, including self-esteem.<sup>5</sup> Furthermore, childhood obesity may influence that individual in the long-term, with increased risk of developing chronic conditions such as heart disease, type 2 diabetes and its associated renal complications, nonalcoholic fatty liver disease, obstructive sleep apnea, infertility, orthopedic complications from excess weight, and increased rates of cancer.<sup>5,6</sup> Without a doubt, early intervention to improve

childhood health and prevent childhood obesity requires urgent attention for the sake of the child's short- and long-term health, well-being, and security.<sup>6</sup> Furthermore, chronic disease at any age or population is inevitably accompanied by rising healthcare costs and poor health outcomes.<sup>9</sup> Investment in preventative care and establishing better health literacy throughout low-income communities will result in lower overall healthcare costs later in life and improved quality of life among all who participate. Considering these socioeconomic contributions to obesity's prevalence and the negative consequences that will afflict our city's youth, it would be of immense benefit to consider funding implementation of *Making Waves*, a childhood obesity prevention program specifically geared toward Naval military families and their children.

While *Making Waves* is presently a "drop in the bucket" in the city of Norfolk, we believe that ripples lead to waves. Use of community resources, supportive environments, and educational tools to empower our members will lead to big changes for both families and their children. The present state of childhood obesity in this city can no longer be ignored, and swift action must be taken to mitigate the many lifelong negative effects that accompany an unhealthy lifestyle early in life.

### **Background**

Unfortunately, military families face additional stresses that increase risk for obesity and chronic illness. Disruptions in parenting, separation from loved ones, anxiety for the safety of deployed individuals, frequent displacements, and caregiver stress all place military parents and their children at increased risk for unique health issues and chronic disease.<sup>7</sup> In fact, effect of military employment on children has brought up ethical concerns for the well-being and physical health of military children.<sup>8</sup> *Making Waves* will

play a role in mitigating some of those negative effects by providing a supportive and accessible environment that encourages healthy behaviors across the lifespan, with emphasis on patient-provider communication and improved self-efficacy.

The Social Ecological Model (SEM) will guide the framework of this program as it integrates the complex interrelationships of interconnected systems of an individual's and community's life. Undoubtedly, these interconnected systems are particularly complex in the lives of military families. A cross-sectional survey of low-income families in New Jersey found that multiple elements within each layer of the SEM contributes to childhood obesity.<sup>10</sup> Chief among these elements are parent health behaviors, neighborhood environment, and perception toward food and physical activity.<sup>10</sup> Further analysis confirmed the multi-layered SEM contributions to childhood obesity by showing that access to parks and physical activity facilities, parental influence on health, socioeconomic status, and access to healthy food sources all play an integral role in prevalence of childhood obesity.<sup>10</sup> A statement by the International Journal of Obesity Supplements also backs the efficacy of using the SEM as a successful obesity prevention program framework.<sup>11</sup> Thus, *Making Waves* will address these 4 primary levels of the SEM through various educational seminars, group fitness opportunities, low-cost resources for physician follow-up, and community-based events.

Various sources also show that use of the Chronic Care Model will be of benefit to this program. As Wagner et al state, all chronic conditions (including childhood obesity) present with a "common set of challenges to the sufferers and their families" such as disability, emotional impact, complex medications, and difficulty obtaining helpful medical care.<sup>12</sup> When paired with appropriate delivery of resources and care,

intervention at the community level leads to an improved outcome. Thus, *Making Waves* will function as a component of the larger healthcare community, with vital connections to various healthcare resources and complementary resources throughout the community.<sup>12</sup> This will enable more productive patient-provider interactions, which will ultimately improve the effectiveness of health changes and obesity prevention.<sup>12</sup> A 2011 systematic review found that intervention programs utilizing components of the Chronic Care Model were significantly more effective at preventing and/or managing obesity in children and adolescents.<sup>13</sup> All programs included in this review utilized the same primary functions of the Chronic Care Model: self-management support, using relationships, family education, and motivational interviewing to improve skills and confidence; decision support for the providers; delivery-systems that promoted follow-up; and clinical information systems that evaluated progress of the patient and provider.<sup>13</sup> With this in mind, *Making Waves* will also use this general framework, accompanied by components of the aforementioned SEM, to provide intervention and education to children and families, with the expectation that this will lead to better health behaviors, reduced childhood obesity, and reduced risk of its associated comorbidities.

It should also be noted that group fitness activities have been empirically found to provide necessary social support that increases adherence to a health change or exercise program.<sup>14</sup> Eyster et al found that American adults are significantly more likely to increase physical activity when surrounded by a social support network with common goals.<sup>14</sup> The same positive effect of group intervention can be said for children; a Cochrane review of obesity prevention interventions found significant support for the effectiveness of group programs on pediatric BMI and health outcome.<sup>15</sup> The successes

of Project Energize!, MOVE/me Muevo Project, and various other childhood obesity prevention programs presents encouraging evidence for the future success of *Making Waves*.<sup>15,16</sup> Thus, this program will have roots in group activity, community education, and social support, in addition to the modeling of the SCM and Chronic Care Model.

### **Program Goals**

The general program goals of *Making Waves* are to educate the military community of Norfolk's Naval Base on healthy behaviors and the benefits of physical activity, while providing resources for low-income military families that will help them achieve these health-related aims. Our first primary goal is to *reduce incidence of childhood obesity* in the city of Norfolk by 5% by the end of 2017. Next, we aim to *reduce incidence of obesity-related comorbidities* (i.e. type 2 diabetes, cardiovascular disease, metabolic syndromes) in the city of Norfolk by 5% by the end of 2017. We will also seek to *improve health literacy among low-income military families* through use of free education seminars, distribution of literature, and a bi-annual community family health fair. We plan to *increase rate of annual Primary Care Physician visits and enrollment with a PCP* by 50% by the end of 2017. Finally, our last primary goal is to *increase rates of physical activity participation* among low-income families and their children by 20% by the end of 2017.

We also have two secondary goals that will indirectly influence the successes of our primary goals. First, we hope to *develop a partnership with the Naval Medical Center*, a hospital and outpatient system primarily serving military Tricare families of the Norfolk and Portsmouth areas. This partnership will improve the visibility of *Making Waves* and

will greatly increase likelihood that we reach our target demographic. Second, we plan to *increase access to low-cost healthy foods through partnership with the Five Points Community Farm Market*, a Norfolk-based farmer's market.

**Program Description:**

The framework of *Making Waves* will address obesity prevention and health promotion from the four SEM levels of population, community, interpersonal relationships, and the individual. The Chronic Care Model will also be integrated throughout program design with emphasis on self-management of personal health; health education; and improving community and delivery systems between the patient and provider. Appendix A provides more detailed description of a tentative program schedule and design.

On a general level, focus will be on broadening the public's knowledge of this organization and obtaining funds from partnering organizations. Furthermore, general education on use of the Affordable Care Act, including how to access insurance coverage and appropriate preventative care, will be promoted through advertisements and one-on-one education. Not only will this increase likelihood that participants will seek regular care from a PCP, but it will also give them the tools and knowledge they need to effectively interact with their providers based on Chronic Care Model principles.<sup>13</sup> Effectiveness of our outreach will be assessed via survey upon application and entry to the program.

Community efforts will increase our visibility in low-income neighborhoods with large military populations. One key component of our program design will be bi-annual Community Health Fairs. The goal of these events is to attract members, increase

general health literacy, and assess the community's overall knowledge of chronic illness prevention (through survey) so that *Making Waves* can better cater our intervention to the community we serve.

The interpersonal connections made between families, their children, and their peers will be vital in increasing adherence to our program and providing support to those families ready to make positive health changes.<sup>14,15</sup> Progress will be measured through bi-annual survey of health literacy knowledge and attendance at every class.

Furthermore, information regarding childhood obesity and family lifestyle changes will be assessed at the beginning of the program and every month, with checks on weight, survey of personal physical activity levels, and perception of health knowledge. Detailed information on the interpersonal groups, such as education classes and support groups, is detailed in Appendix A.

At the individual level, immense benefit will be derived from this program through education and the subsequent knowledge that stems from it. However, *Making Waves* recognizes that sometimes pure knowledge is not enough to prompt change in an individual's habits. Thus, we will utilize motivational interviewing throughout the program, primarily at the commencement of one's participation in the program, midway through, and as needed based on health change progress (i.e. weight loss, healthy eating, self-reported increased physical activity, etc.). Our intent is to improve the participant's self-efficacy and improve their outlook toward achieving a healthier life.

### **Program Evaluation:**

Of course, our program's success will ultimately be measured by achievement of our program goals. Our primary goals (decreased childhood obesity and comorbidities,

increased physical activity, improved health literacy, and increased incidence of PCP visits) will be assessed continuously throughout the year, through weekly weigh-ins and monthly self-reports of health attitude, physical activity level, and healthy eating habits. Statistical analysis will allow us to assess overall rates of success in our primary goals. We will also gather general feedback about the program from participants bi-annually; this will allow us to better cater our program toward the population we want to serve and alter our goals appropriately.

As mentioned previously, Community Health Fairs will be integrated in the program design. These will also allow Making Waves to evaluate community perception of our program and will help us establish goals to meet the needs of the community. They will also provide us with a sense of public health knowledge and the potential impact (and success) of our program in the community.

**APPENDIX A: Program Details and Education Group Descriptions**

<p><i>Oceana</i> Adult and Parent Education</p>	<p>Family-oriented education and group fitness classes geared toward adults, with emphasis on learning how to incorporate healthy lifestyle changes into the family unit. <i>Oceana</i> will meet every Thursday afternoon with options to convene for adult group fitness classes every Tuesday and Saturday at the NEX, as well as options to meet for healthy cooking seminars the first Monday of every month (sponsored by Five Points Community Farm)</p>
<p><i>Starfish Students</i> Ages 13 and under</p>	<p>This program is specifically intended for children ages 13 and under. It will provide educational activities and “fun fitness” sessions every Thursday afternoon at the same time that <i>Oceana</i> meets, allowing parents and children to learn independently. <i>Starfish Students</i> and <i>Oceana</i> curriculum and activities will coincide so that there is continuity in learning objectives experienced by both groups.</p>
<p><i>Pelican Patriots</i></p>	<p>This program will provide group fitness classes for all members of Making Waves, regardless of their <i>Oceana</i> or <i>Starfish Student</i> group assignments. These regular fitness classes will provide a supportive environment for learning and growing as a community.</p> <ul style="list-style-type: none"> <li>○ Classes will meet every Tuesday and Saturday at the NEX, with options including: <ul style="list-style-type: none"> <li>▪ Zumba</li> <li>▪ Step Aerobics</li> <li>▪ Tai Chi</li> <li>▪ Yoga</li> <li>▪ Water aerobics and group swim on base facilities</li> <li>▪ Body-Weight Exercises and group runs at Mt. Trashmore (located in Virginia Beach)</li> <li>▪ <i>Starfish Student</i> play groups at the NEX and Mt. Trashmore playground</li> </ul> </li> </ul>
<p>Free child-care will be provided on Saturdays during group fitness classes in order to enable more adult participation. Child-care will have a physical fitness emphasis with child-oriented education tied into activities. Children 5 and under are encouraged to participate in this service.</p>	

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