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School-Based Asthma Education Program:

A Research Translation Project

A Capstone Scholarly Project Presented by:

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Abstract

Addressing asthma among adolescents is a public health concern due to the greater risk for adverse asthma health outcomes related to increased autonomy with this age group. An examination of current literature indicated that the educational asthma program Kickin' Asthma effectively improved asthma among adolescents. The implementation of this program among asthmatic adolescents in Henrico, Virginia revealed limited improvement of asthma knowledge, health outcomes, and self-management skills. Additional positive outcomes included active student engagement and participation as well as the desire of the middle school nurse to continue the program and expand implementation. Further implementation of the Kickin' Asthma program is necessary to fully evaluate the program's effectiveness to translate into public health nursing practice and to improve asthma health and related outcomes.

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School-Based Asthma Education Program:

A Research Translation Project

Asthma persists to be a leading chronic childhood health condition which affected approximately 7.0 million children in 2010 (Center for Disease Control [CDC], 2012). Asthma prevalence in the United States spanned from 4.4% to more than 9.8% from 2001-2005 between states (CDC, 2012). In addition, surveillance by the CDC revealed that the prevalence of asthma among children aged 17 and younger has increased by 1.4% (Akinbami et al., 2012). The public health concerns surrounding this childhood health issue include the potential of adverse outcomes, such as the need for acute medical interventions, hospitalization, and mortality in addition to experiencing limitations, school absences or missed work days (CDC, 2012). In 2008, 10.5 million absences were reported for children aged 5 to 17 with at least one asthma exacerbation while 58% experienced at least one or more asthma exacerbation in the previous 12 months (CDC, 2012). Additionally, the economic burden associated with increased asthma impairment and expenses indicate the need to address this public health concern as the U.S. struggles to contain health care costs (Szeffler et al., 2011).

Children of school-age and adolescents spend a substantial amount of time in school. This public health setting provides the opportunity for the implementation of school-based interventions by the school nurse. School nurses play a pivotal role in reaching vulnerable populations and serve as a vital resource for health care, health education, and to facilitate continuity of care. A particularly vulnerable population is adolescents as this is a critical period of growth and development accompanied by greater responsibility and independence to master self-care skills. During this transitional time between childhood and adulthood adolescents are likely to have decreased parental supervision and management of their chronic conditions. In the

study by Akinbami et al., (2009) the results indicated a higher asthma prevalence (10.0%) among adolescents 11 to 17 years of age and deaths (2.8 per 1 million) when compared other age groups including children 0 to 4 and 5 to 10 years of age. The researchers stated "... issues with emerging autonomy may exacerbate problems with asthma control and may contribute to the higher rates of deaths observed in our analysis" (Akinbami et al. 2009, p. S140-S141). Asthma can be effectively managed to decrease asthma attacks, adverse health outcomes, and potential life-threatening outcomes.

Adolescence as a vulnerable population warrants for public health nursing to implement evidence based interventions researched to meet the specific development needs of this age group. The Doctorate of Nursing Practice (DNP) student critically appraised current research literature on school-based asthma interventions among adolescents which indicated group based education an effective intervention. The aim of this paper is to present the project implementation of the Kickin' Asthma program by the DNP student. The DNP student practiced the translation of research into practice as a component of the educational preparation of the DNP role as demonstrated by the implementation a research-based intervention (AACN, 2006). The purpose of the Kickin' Asthma curriculum was to improve adolescent asthma self-management through this educational program.

Review of Literature

The current research focused on adolescent asthma in the school setting is primarily comprised of group based educational programs. There are several educational programs examined in the research literature (Mosnaim et al., 2011; Magzamen, Patel, Davis, Edelstein, & Tager, 2008; Shaw, Marshak, David, & Neish, 2005; Al-sheyab, Gallagher, Crisp, & Shah, 2012; Atherly, Nurmagambetov, Williams, & Griffith, 2009; Velsor-Friedrich, Pigott, & Srof, 2005;

Velsor-Friedrich et al., 2012). Research evidence supports implementation of asthma programs centered on self-management to improve self-management skills and health outcomes.

Group-Based Interventions

The study by Mosnaim et al. (2011) examined the Fight Asthma Now (FAN) program through randomizing 344 youth and 192 adolescents in a RCT. The FAN program provided education during four 45-minute sessions completed on consecutive school days. The study results utilizing a stratified analysis indicated the FAN program to improve students' knowledge ($p=.011$) and spacer competency scores ($p<.0001$). These findings support the implementation of the FAN program as asthma knowledge and space techniques were significantly improved.

An asthma educational program to improve asthma knowledge among asthmatic and non-asthmatic adolescents has been developed. The study by Shaw, Marshak, David, and Neish (2005) evaluated the First Aide for Asthma program which results found significant improvement of asthma knowledge ($p=.0001$) and positive results for asthma attitudes ($p=.02$) for asthmatic and non-asthmatic students at school one, although no significant difference at school two. For the asthmatic students at school one the researchers reported significant results of increased confidence of asthma management and considerable improvement in self-efficacy ($p=.0001$).

The educational program, Kickin' Asthma was examined in the prospective study by Magzamen, Patel, Davis, Edelstein, and Tager (2008) among 990 adolescents. The Kickin' Asthma program is delivered in four, 45 minute sessions over the course of consecutive days or one week apart covering topics from asthma physiology, asthma triggers, to problem solving (American Lung Association [ALA], n.d.). The researchers found the Kickin' Asthma program to considerably decrease days of activity limitation and night sleep disturbances in addition to

health care utilization of emergency visits and hospitalizations. Magzamen et al. (2008) report the results consisted of majority of participants had improvement in overall asthma symptom scores. This large-scale implementation over three years of the Kickin' Asthma program provides strong results of this intervention to improve asthma related health outcomes. The findings by Magzamen et al. (2008) indicate for the program's effectiveness to improve asthma outcomes and management among urban adolescents.

As adolescents interact and learn from peers, there is evidence to support a peer-led asthma educational program. The cluster RCT study by Al-sheyab, Gallagher, Crisp, and Shah (2012) analyzed the impact of the peer-led Adolescent Asthma Action (Triple A) program on health-related outcomes among 261 high school students with asthma. The results from the study revealed the intervention group with significant improvements in the health related quality of life, self-efficacy to resist smoking, and asthma self-management knowledge compared to the control group (Al-sheyab et al., 2012). As these findings are based on a large sample size with significant improvements this supports the implementation of the Triple A program.

Asthma education programs which include intervention by a nurse practitioner (NP) are not strongly supported by evidence to improve health outcomes due to the limited research conducted. The study by Velsor-Friedrich, Pigott, and Srof (2005) examined the Open Airways program with five monthly visits with an NP for effectiveness among 52 adolescents. Velsor-Friedrich et al. (2005) reported that based on the results the intervention did not improved health outcomes of the participants. The analysis was unable to detect significant differences during any data collection points between the intervention or control group. The results revealed participates in the intervention group, which included individualized NP visits, attained improved asthma knowledge ($p=.03$), self-efficacy ($p=.01$), general self-care practices ($p=.02$), and asthma self-

care practices ($p=.01$) over time. While the NP visits improved psychosocial outcomes additional research to determine the impact of health outcomes is needed to improve asthma related morbidity and mortality.

The study by Velsor-Friedrich et al. (2012) assessed the efficacy of the teen educational asthma management (TEAM) program among 137 high school students. The TEAM program includes asthma education, coping skills training, and NP reinforcement visits, to improve self-care and quality of life. The results of the intervention indicated no significant difference between the control group (standard asthma education) for asthma self-care and asthma quality of life overall or at the two, six, and twelve month post-test points ($p>.05$). However, the improvement over time of asthma quality of life scores for both groups attained statistical significance ($p<.001$). The study results also indicated no significant differences between groups for asthma knowledge, asthma coping-frequency, asthma coping efficacy, or asthma health outcomes ($p>.05$). However, the researchers report the analysis found statistically significant results main effect of overall time of improved in asthma knowledge ($p<.01$), asthma self-efficacy ($p<.001$), symptom days ($p<.001$), and asthma-related school absences ($p<.001$) for both groups (Velsor-Friedrich et al., 2012). Further research on the impact of NP intervention among asthmatic adolescents in the school setting is necessary prior to recommending this intervention.

Asthma educational programs are a cost effective approach to addressing adolescent asthma in addition to improved health outcomes. The quasi-experimental study by Atherly, Nurmagambetov, Williams, and Griffith (2009) evaluated the Power Breathing program for cost effectiveness among 524 middle and high school students. The Power Breathing programs results in significantly decreased number of symptom days for participants compared to the control group ($p=.008$), increased asthma knowledge ($p=.014$), asthma related quality of life

($p=.011$), and decreased school-reported absenteeism ($p=.03$) among participants. The cost of the program resulted in \$3.90 per symptom-free day gained in contrast to the cost of inhaled steroids at about \$11 per symptom-free day gained.

As the evidence presented supports for asthma education programs to improve asthma health and knowledge while maintaining a low cost, considering recruitment to programs is prudent. The study by Joseph et al. (2011) examined characteristics of early, late, and non-participants among 422 urban adolescents in a school-based on-line based asthma management program. The characteristics of participants according to the results included that an asthma diagnosis more likely, medication use for respiratory symptoms, and to have symptom frequency similar to moderate or severe asthma. The results also revealed significant predictors of participation included younger age, asthma diagnosis, and medication use while late-participants were poorly compliant with completion of computer sessions, baseline and follow-up surveys. (Joseph et al., 2011).

Recommendation

While variation exists between program goals and outcome measurements, the implementation of educational programs is supported by this literature review, government initiatives, and national guidelines. The U.S. government initiative Healthy People 2020 developed to improve the nation's health includes specific goals and objects for respiratory disease. The Healthy People 2020 goal is "promote respiratory health through better prevention, detection, treatment, and education efforts" (HHS, 2012). Objectives of this goal aimed at children 5 to 17 years old include addressing missed school days, decrease asthma deaths among children and adults under age 35, and decrease hospitalizations and emergency department visits among children and adults aged 5 to 64 years old (HHS, 2012). The implementation of

educational programs for asthmatic students are supported as the goal to promote respiratory health advocates for education efforts. In addition, the U.S. Department of Health and Human Services (HHS) (2007) published a national guideline entitled “Guidelines for Asthma Diagnosis and Management” for utilization in the acute and public health settings. The recommendations within this guideline supported by accumulated evidence include the implementation of asthma education programs as the evidence suggests school based asthma education can improve health and quality of life of asthmatic students.

The critique of the studies in the review of literature support asthma educational programs centered on self-management and increased knowledge to be effective in improving adolescent health related outcomes. While taking into account research gaps of on interventions in combination with health education and long-term health outcomes as well as supporting research findings, the educational intervention of Kickin’ Asthma is an evidence-based approach and recommended to be implemented for this project. This intervention is supportive to address asthma prevalence as well to reduce morbidity and asthma related outcomes among urban, low-income, minority, adolescent populations. The study by Magzamen et al. (2008) examined the Kickin’ Asthma program and findings revealed decreased asthma symptoms, activity limitations, emergency department and unscheduled healthcare visits of the participants. The Kickin’ Asthma curriculum focuses on educating adolescents with asthma self-management skills which is imperative during this stage of development. During adolescence increased responsibility is assumed by the adolescent in which development of self-management skills are essential to improve health outcomes and ability to independently, effectively manage asthma. The translation of educational programs based on research evidence is important and necessary to improve health outcomes of asthmatic adolescents in the public health setting. Therefore the

Kickin' Asthma program was selected as the research based intervention to implement to address adolescent asthma in the school setting.

Project Description

Kickin' Asthma was an educational program developed by the American Lung Association (ALA) to target asthmatic children from sixth to tenth grade or aged 11 to 16 years old (ALA, n.d.). The Kickin' Asthma program was appropriate for both the middle and high school settings. The Kickin' Asthma was tailored to adolescents through the program's focus on fulfilling the need to educate this age group to assume responsibility for self-managing their asthma. The four sessions of the program included the following topics:

1. Session 1: Asthma physiology
2. Session 2: Symptoms, early warning signs, and triggers
3. Session 3: Medications and devices
4. Session 4: Emergency signs, asthma review, self advocacy, and problem solving.

The cultural appropriateness of the curriculum was suitable for a broad range of populations as the program was studied over five years among 1,300 students in the diverse school district of Oakland, California. The program may be implemented by professional health educators, school nurses, school staff or trained community volunteers. The training included completion of the Asthma Basics course provided at no cost by the ALA and was available on-line (L.A. Personal Communication, May 21, 2013).

Theoretical Framework

Adolescence is a critical period of growth and development in which responsibility and advancement of self-care techniques can be achieved. In learning proficient asthma self-management skills, adolescent asthma education should take into account developmental

concerns, increase personal responsibility, and teach problem-solving skills (Sadof & Kaslovsky, 2011). Orem's Self-Care Deficit Nursing Theory (SCDNT) was applicable to a school-based asthma education program for adolescents. The SCDNT is a refinement of the separate articulation of a theory of self-care, a theory of self-care deficit, and a theory of nursing system (Orem, 2001).

The essential foundation of the theory of self-care was the recognition of self-care as a human regulatory process. It posits that individuals must perform care for themselves or have care performed for them by another to uphold life, to maintain physical and psychosocial functioning necessary for life, and for integrity of performance and development (Orem, 2001). As Orem states "self-care must be *learned* and it must be *deliberately performed continuously...*," the Kickin' Asthma program follows this by educating students about asthma fundamentals and by promoting the asthma self-management skills necessary to maintain this chronic condition (p.143). The underpinning of the theory of self-care deficit was that the level of nursing care required for individuals depends on individual maturity level and limitations in their ability to perform health care related actions (Orem, 2001). This theory applied to the Kickin' Asthma program as adolescent students are in the process of maturing cognitively and physically and therefore necessitate a nursing intervention specific to their needs. The essential concept of the nursing system theory was nurses comprise all nursing systems and subsequent actions for legitimate clients of nursing through utilizing their abilities of nursing agency described in the following section.

The theoretical concepts of the SCDNT of self-care, self-care agency, therapeutic self-care demand, nursing agency, and nursing system were all pertinent to this program. The concept of self-care is "the practice of activities that individuals initiate and perform on their own behalf

in maintaining health, life, and well-being” (Orem, 2001, p.43). The asthma education program incorporated this concept through promoting asthma self-management skills and education. The self-care agency related the individual’s power and capability to perform self-care activities (Orem, 2001). This concept guided the program by the assessment of each student’s self-care deficits related to asthma management. The intervention of the Kickin’ Asthma program incorporates these assessments into the education provided.

The therapeutic self-care demand concept represents the necessary care actions to meet all self-care requisites of a person by or during a period of time for a specific health need, condition, or circumstance through prudent methods of managing factors related to the requisites, basic regulation of human functioning (such as adequate food and water), and satisfying the activity factors of the requisite, such as promotion and prevention (Orem, 2001). Kickin’ Asthma functioned as the therapeutic self-care demand concept by the method of education to teach self-care skills for the specific health need of asthma. The program also demonstrated this concept through fulfilling the activity element of the requisite to prevent poor asthma health outcomes through aiming to reduce asthma exacerbation and complications.

The nursing agency concept is defined as the “developed capabilities of persons educated as nurses that empower them to represent themselves as nurses and within the frame of a legitimate interpersonal relationship to act, to know, and to help persons in such relationships to meet their therapeutic self-care demands...” (Orem, 2001, p. 518). The DNP student was the nurse implementing the Kickin’ Asthma program and functioned as the nurse agency within the SCDNT theoretical concept. The concept of nursing system refers to purposeful nursing actions implemented in accordance with the client’s components of therapeutic self-care demands while protecting and monitoring the development or exercise of the client’s self-care agency (Orem,

2001). The implementation of the asthma education program by the DNP student functioned as the nursing system to support and educate adolescents by teaching and strengthening asthma self-care abilities and skills.

The SCDNT established a dynamic interpersonal relationship for the nurse to help a person with self-care activities, according to their ability, through “*giving guidance, direction, and teaching*” (Orem, 2001, p. 7). Furthermore Orem’s SCDNT supported this program as the services provided “...should also take into consideration what it is they need to do now or in the future” (2001, P. 7). This program served to increase the adolescent’s knowledge of asthma self-care and necessary skills.

Project Description, Implementation, and Monitoring

Setting Description

The program was implemented at Elko Middle School in the Henrico County Public School (HCPS) system located in Henrico County, Virginia. The population setting at the middle school was the intended audience of the Kickin’ Asthma curriculum. Elko Middle School community had urban characteristics with low socioeconomic neighborhoods which was appropriate for the Kickin’ Asthma program. The group consisted of 21 adolescent students both male and female in sixth to eighth grade as a convenience sample. While the desired group size was 24 students in the original proposal this was not reached due to exhaustion of student recruitment. The methods to recruit participants included specific asthmatic students sent home with permission forms, advertisement of program through student announcements, and posters hung in the school with the program information. All of the participants had a diagnosis of asthma and 17 students had a rescue inhaler in the school’s clinic.

Community Assessment

The middle school was located in Sandston, Virginia community in which students attended HCPS. The population of this community in 2010 was 7,571 with 7.2% of individuals under five years of age, 26.1% of individuals under 18 years of age, 54.9% of individuals between ages 18 to 64, and 11.8% of individuals over 65 years of age (U.S. Census Bureau, 2013). The ethnicities of Sandston residents from the 2010 census are African American (32.9%), American Indian and Alaska Native (0.9%), Asian (1.3%), Caucasian (60.6%), Native Hawaiian and other Pacific Islander (0.1%) (U.S. Census Bureau, 2013). The percent of persons aged 25 and older with a high school diploma or higher was 82.3% while 13.5% for attaining a bachelor's degree or higher (U.S. Census Bureau, 2013). The percent of persons living below the poverty level for 2007-2011 was 18.8% in comparison Virginia's rate of 10.7% (U.S. Census Bureau, 2013). The median household income for the Sandston community was \$47,927 and the per capital income for the previous 12 months was \$22,797 (U.S. Census Bureau, 2013). In addition, approximately 650 (2.5%) households have no vehicle and 3,273 (12.5%) households have one vehicle (Pitts, 2008). Low socioeconomic urban minority youth that experience health disparities related to disproportionately high rates of severe asthma which can result in both poor mental-emotional and health outcomes (Basch, 2011).

A public nursing health priority for the community is inadequate management of pediatric asthma. In an interview with the Supervisor of School Health Services (SHS) for HCPS the DNP student learned that asthma is a leading chronic condition in the eastern section of the school district. She discussed how the students visit the schools' clinics often missing class time, according to the monthly reports, to use their rescue inhalers (J.D. personal communication, March 7, 2013). In addition, chronic lower respiratory conditions rank as the fourth leading

cause of death (36.7/1,000; age-adjusted) in Henrico County (Virginia Department of Health [VDH], 2012). These factors indicate that asthma is not well controlled and public health interventions are needed. Improving asthma health outcomes can be achieved through health education, quality and consistent health care, effective medication management, and decreased environmental threats. These measures can reduce asthma related morbidity and mortality (Akinbami, Moorman, Garbe, & Sondik, 2009).

The health care services available to the community within the approximate 132 square miles of eastern Henrico County are limited (Henrico County, 2013b). Specific to the school-aged population there are only two pediatric offices. The East End Pediatrics offers appropriate health care services, however, there is only one pediatric on staff which is insufficient and business hours are weekdays 9:00am to 5:00pm (East End Pediatrics (2013). The Pediatric Center, East End Office also provides pediatric health care services with several pediatricians and nurse practitioners on staff (Pediatric Center, 2013). This pediatrician office has daytime hours only as well which may be inconvenient to the pediatric patients and their caregivers. The Henrico Health Department is an option for children and adolescents to receive immunizations and well-child checkups although this is not comprehensive health care and this clinic is only open one day a week for such services during the day (Henrico County, 2013a).

School-based education programs provide an effective intervention to ameliorate psychosocial outcomes of inner-city minority children (Velsor-Friedrich & Pigott, 2005). However non-Hispanic African America and Latino children as targeted populations have higher asthma prevalence and are at an increased risk for poor asthma related outcomes. African American children experience substantial greater mortality compared to Caucasian children (CDC, 2006). To address these adolescent health disparities in the urban setting the Kickin'

Asthma program was found to be effective in improving asthma self-management, symptoms, and related outcomes (Magzamen et al., 2008). The finding that childhood asthma was a leading chronic condition in this community impacting health and education warranted public health intervention. In addition the limited access and availability to pediatric health care negatively impacted the health education that adolescents would receive during annual or illness-related visits. This health care gap within the health care of adolescents in the Sandston community was temporarily alleviated through a school based asthma education program delivered by the DNP student.

Organizational Analysis of HCPS

The HCPS district as the site for the implementation of the DNP student's project is a large public school district located in central Virginia. HCPS maintain the vision of the school district to be "...be the PREMIER school division in the United States" (HCPS, 2013e). The mission of HCPS was "...innovative leaders in educational excellence, will actively engage our students in diverse educational, social, and civic learning experiences that inspire and empower them to become contributing citizens" (2013e).

As a large organization which employed about 6,631 individuals with 3,717 teachers and 72 registered nurses in addition to more than 49,300 enrolled students, HCPS has clear delineation of the organization's infrastructure (See Appendix A) (HCPS, 2013c; HCPS, 2013d). The HCPS School Board directly oversees the Superintendent. The Superintendent along with the Assistant Superintendent supervises the following departments which comprise HCPS: Exceptional Education and Research and Planning, Secondary Education, Operations, Finance, Elementary Education and Organizational Development. The Superintendent and the Director of Human Resources oversee the Human Resources Department. The Director of Communications

and Public Relations Department manages this department and overseen by the Superintendent as well. The Superintendent and Deputy Superintendent manage the Leadership Development and Special Projects Department (HCPS, 2013b; HCPS, 2013d).

The dominant paradigm of HCPS is a top down approach to accomplish the overall vision and daily operations. The leadership hierarchy is to be followed by employees for example to initially address concerns or issues at the school level. Also, the “trickle down” approach is utilized in the HCPS organization. Sources of funding for HCPS include federal, state, county, school nutrition services, state and federal grants as well as special revenue funds (HCPS, 2013a). The total approved funds for the 2013/2014 school year are \$508,142,461 which is a 0.7% increase from the previous school year (HCPS, 2013a).

The programs and services provided by HCPS include elementary and secondary academic education to the communities within Henrico County. An adult education center and two high schools with career and technical educational programs are available to residents. Within the HCPS high schools there are 13 specialty centers that focus on specific fields including business, communication, engineering, humanities, math and technology. The SHS of HCPS manages the health care needs of students through the expertise of school nurses. Services encompassed in the Coordinated School Health Program include case management, health screenings, administration of daily and emergency medications, health education, care of acute and chronic illnesses, and first aid intervention.

The HCPS organization utilizes reports which consist of an annual report and stakeholder satisfaction surveys completed by students, staff, and employees. The measurement of outcomes for the HCPS academic performance overall are determined by the Standards of Learning (SOL), accreditation status, and graduation rates. For the SHS Department, the outcome measures for the

school clinics are based on monthly clinic reports, medication incident reports, and injury reports. The examination of these outcomes measures provides an overall understanding of the performance of the HCPS organization.

Evidence of Stakeholder Support

The internal stakeholders of this project included the SHS Supervisor, the middle school's principal, and the school nurse at the selected school. The SHS Supervisor agreed to facilitate the implementation of the Kickin' Asthma program (See Appendix B). The principal at the middle school agreed for the DNP student to implement the program at the school and discussed her support when the DNP student came to the school prior to the beginning of the program implementation. The school nurse also demonstrated her support for the program through valuable assistance to collaborate with the DNP student and school staff to schedule the program as well as to identify asthmatic students.

Resources, Facilitator, and Challenges

The resources utilized to implement this program included the use of the school as a meeting location for the program and the ALA to obtain the Kickin' Asthma curriculum. The school nurse of the selected middle school was a valuable resource and facilitator of the program. The school nurse assisted in the identification of asthmatic students and sent students home the program information and permission forms as prepared by the DNP student. The SHS Supervisor also facilitated this project by continuous support of the DNP student. As the nurse leader within this public school system, improvement of school health through educational intervention is supportive of her public health position. In addition, the SHS Supervisor agreed to support implementation the Kickin' Asthma program as a member of the DNP student led project.

The challenges of implementation of the Kickin' Asthma program included ability to recruit the entire desired group of 24 participants and inclement weather during the winter season. Student recruitment included several methods to encourage student participation. Permission forms and program flyers were sent home to students identified by the school nurse to have asthma (See Appendix C). The DNP student created a script to be read on the student announcements as well as made and hung several posters in the school to advertise the Kickin' Asthma program. During the planning phase of this project, scheduling the program was delayed due to inclement weather which resulted in school closings on numerous days. In addition, staff absences at the middle school delayed communication between the DNP student, school principal, and school nurse.

Individualized Program Tailoring

The Kickin' Asthma curriculum was tailored to the students participating through an individual assessment for self-care deficits. The DNP student through utilizing the Kickin' Asthma curriculum ensured that during this group-based education provided education about these self-care deficits. Individualizing interventions is important to make sure the intervention is applicable to each participant to encourage participation, buy-in, and goal achievement. The education provided The DNP student also utilized asthma medication equipment, such as a peak flow monitor, to demonstrate correct use and to facilitate learning. Also in the original proposal four videos about childhood asthma were to be shown, however, due to time constraints this was not possible. In future implementations, if more time can be allotted to each session these videos would be beneficial to reinforce the topics of asthma symptoms, triggers, medication use, and management (CDC, 2004; CDC, 2013; WebMD, 2013a; WebMD, 2013b).

Project Design and Procedure

The project design was a pre- and post-intervention design. This design was appropriate to examine the effectiveness of the Kickin' Asthma program on asthma outcomes among adolescents. The procedure to implement this project began with engaging the school principal of the selected school, Elko Middle School, for permission to offer the program to the student population and determine suitable dates for implementation. After a few weeks of communication the principal consented to the implementation and designated the school nurse as the primary contact for the school regarding this project. The Elko school nurse was essential to the implementation process and as a resource for the DNP student. After school support was secured, the DNP student contacted the Parent Teacher Student Association (PTSA) to engage the school community. Through communication with the PTSA President, the DNP student learned that the school community did not have any current concerns related to the implementation of the Kickin' Asthma program. The DNP student attended a PTSA meeting to share information about the Kickin' Asthma implementation and to seek community input. During the PTSA meeting the DNP student was well received and thanked for attending the meeting and offering the program to the asthmatic students at the middle school. There were no concerns reported to the DNP student by the community members in attendance related to the Kickin' Asthma program.

Student recruitment occurred once the DNP student established the stakeholder support discussed above. The student participants had a diagnosis of asthma according to their health history form for the current school year or as noted on the cumulative health record maintained at the selected school. The school nurse identified asthmatic students to receive the option to participate in the program. The DNP student provided the school nurse with sealed envelopes

containing the program information and permission slip for the school nurse to send home with the identified asthmatic students and student who requested to participate. The parents/guardians of the participants were informed of voluntary participation and of the programs full extent, including topics to be presented, as well to provide permission to participate (See Appendix C).

For this project there was one group of 21 students which received the four 40-minute sessions. The Kickin' Asthma program was implemented during the "Soar" class period which was a type of independent study period students attended Tuesday through Friday in the morning. The sessions were scheduled to be implemented on consecutive days. In addition to these four sessions, there was one meeting four weeks post-program to review material and take the additional post-survey. At the first session participants received the student workbook which accompanied the instructor's manual for students to follow along with the material presented. The DNP student collected these workbooks at the conclusion of each session with the exception of the fourth session. The students keep the workbook at the conclusion of the program to encourage students to reference the material as needed and share with their parents/guardians.

The Kickin' Asthma program was individualized through individual assessment by the DNP student of asthma self-care abilities of each participant. Based upon the assessments for self-care deficits, the DNP student ensured the education provided during the program for those identified deficits the education that corresponded with them were accentuated within the Kickin' Asthma curriculum.

The sessions of the Kickin' Asthma program were implemented according to the Instructor's Manual (ALA, n.d.). The demonstration equipment utilized during Session 3 educated students about proper medication use and techniques as well as during the review in Session 4. The instructor's manual for the Kickin' Asthma program delineated each session for

topics to be presented, materials needed (workbook pages and scenarios/games located on the program resource CD), and the main messages for each topic (ALA, n.d.). Each session included the recommended time allotment for each topic to ensure all topics are presented in the session. The DNP student educated students on each session's topics through interactive lectures on the material and encouraged student participation with discussions. The scenario activities and games in the curriculum provided the opportunity for participants to apply what they have learned, reinforced the education, and encouraged problem solving asthma management.

The data was collected using self-report surveys (see Appendix D). The same survey was utilized to collect pre-program survey data at the beginning of the program and the review session post-program. At the completion of the last session, students took home a parent letter (See Appendix E). The letter template was provided with the Kickin' Asthma curriculum. The DNP student completed the appropriate recommendation based on the pre-survey data for each student. The purpose of this letter was to communicate with the participant's caregiver of action needed regarding the management of their asthma, such as refilling medication prescriptions or contacting their primary care provider to reexamine their asthma management.

The follow-up meeting took place four weeks after the program. During this follow-up meeting the DNP student reviewed the content of the sessions and the student workbook. The students also completed the post-surveys for the program. The DNP student at the conclusion of this meeting provided each participant with the student incentives of various school supplies. The provision of student incentives at the follow-up session was to encourage students to attend the final meeting for the DNP student to review the program and collect data from the post-survey.

Goals and objectives.

There were three priority goals of the Kickin' Asthma program. The first goal was to improve asthma-related health outcomes of the asthmatic adolescent students. The second goal was to increase asthma knowledge among the adolescents with asthma. The third goal was to improve students' self-management skills of asthma. The achievement of these goals will support students to have healthier lives and long-term outcomes into adulthood with improved self-management and understanding of their chronic condition.

There were four main objectives and outcome indicators to guide the Kickin' Asthma program to reach the first goal, improved asthma-related health outcomes, included the following:

1. Decreased student report of daytime symptoms frequency by 60% at the post-survey.
2. Decreased student report of nighttime symptoms frequency by 60% the post-survey.
3. Decreased student report of activity restricted days by 60% at the post-survey.
4. Decreased student absences related to asthma symptoms and illnesses by 60% at the post survey.

The specific objectives and outcome indicators to reach the second goal, increased asthma knowledge included:

1. Increased student understanding of asthma fundamentals by 80% at post-survey.
2. Increased student understanding of asthma symptoms, triggers, and warning signs by 80% at post-survey.
3. Increased student understanding of asthma medications by 80% at post-survey.

The objectives and outcome indicators to achieve the third goal, improved asthma self-management skills were:

1. Increased student proper use of medication by 80% at post-survey.
2. Increased student report of proper medication use by 80% at the post-survey.
3. Increased student correct asthma equipment use, specifically spacer and peak flow meter, by 80% at post-survey.

Budget and resources obtained.

The total budget of the Kickin' Asthma program was \$480.53 (see Appendix F). The Kickin' Asthma curriculum was available for purchase through the ALA for \$49.00 plus shipping and handling at \$10.50. The DNP student was responsible to purchase the equipment, materials, student and school nurse incentive items. The equipment purchased included demonstration medications, including an inhaler, peak flow monitor, and spacer. The materials needed included paper, pens, and posters of the respiratory system and asthma for the delivery of each session. Materials needed to create program promoting posters were markers and poster board.

Additional costs included the travel expense for gasoline of \$60.90 incurred by the DNP student and delineated as follows:

1. Distance from DNP residence to school 24.8 miles X 2 trips = 49.6 miles
2. Distance 49.6 miles X 8 round trips = 396.8 miles
3. Total mileage 396.8 miles / 20 miles per gallon = 19.84 gallons
4. Total 19.84 gallons X \$3.07/gallon = \$60.90

The student incentives of various school supplies purchased by the DNP student included each student to receive two pens, two pencils, one highlighter, and a packet of paper in a gift bag. Bulk packages were purchased and the breakdown of student incentives included: two packs of pens at \$3.79 each; three packs of pencils at \$2.49 each; two packs of highlighters at \$3.04 each;

24 packets of paper at \$0.82 each; and 3 packets of gift bags at \$1.00 per packet. The total for student incentives is \$43.81. The incentive for the school nurse was a \$30.00 gift card to Target to support the purchase of medical supplies for the school's clinic. The personnel costs from the school nurse are anticipated to be contributed as a volunteer. However, this was included in the program costs expected at \$180.00 for the school nurse's time assisting with the program calculated for four hours cumulative at \$45.00 per hour, including benefit costs.

Protection of human subjects.

Institutional Review Board (IRB) approval was not required for this program as this was a research translation of evidence which supported school-based intervention for asthma education of adolescents. There was minimal collection of identifying information of the students outside of the signed permission form and surveys. The identity of the students and any information collected was maintained as private and confidential to protect their human rights. On the pre- and post-survey students were instructed to fill in their first name and last name initial. There were no identified or anticipated risks from participation in this program or of its evaluation.

Ethical considerations included that the program group size was limited and small in comparison to the student population with asthma. As not all students with asthma were able to participate, this caused ethical dilemma of inability to provide valuable asthma education program to all eligible students. Also, another ethical consideration was this program does not encompass follow up resources or services to the students. However, the school nurses of HCPS are able to refer students to health care resources or services through the school clinic.

Implementation plan.

The implementation of the Kickin' Asthma program was at Elko Middle School in eastern Henrico County during one week in March 2014. The students received incentives at the end of the follow-up meeting for participating. Student incentives included various school supplies as a gift. The utilization of non-food incentives was chosen due to the rate of weight related health issues in Henrico County, Virginia. Also, the students are expected to have a depleted supply of writing supplies as the school year was past the half way point.

Dissemination of project results.

The dissemination of the program results is important to share the findings and lessons learned from this project. The DNP student will prepare a presentation of the project results to share with the school nurses employed by HCPS. This will encourage further implementation of this program and increase attention to address childhood asthma through the school system.

Timeline.

The timeline for this project implementation spanned three months from the planning to evaluation and dissemination of findings activities (see Appendix G). The program was implemented from March to April 2014. The assigned activities to each month reflected the 2013/2014 HCPS calendar to accommodate the student testing period from January 21st to 27th, 2014 and several SOL testing dates in March.

Evaluation**Data Analysis**

The data collected was analyzed using the Statistical Package for the Social Sciences (SPSS) software version 22. The data was analyzed using the SPSS descriptive statistical analysis to create frequency and percent tables for both the pre-survey and post-survey data. The

results were compiled into separate tables for comparison of percent differences according to the goal and measurable objective (See Appendix H).

Results

Student Demographics

The student demographics are listed in Table H1. The sample was comprised of 21 students of which 52.4% (n=11) were females and 42.9% (n=9) were males. The mean age was 12.30 (SD=0.98) and ranged from 11 to 14 years old. The participants were primarily in seventh grade (52.4%, n=11) with 33.3% (n=7) was sixth graders and 9.5% (n=2) were in the eighth grade. The majority of students self reported as African American (47.6%, n=10) with 28.6% (n=6) identified as Caucasian, one student (4.8%) self-reported as “mixed” and four students (19.0%) declined to respond. Regarding asthma medication, 42.8% (n=9) of students had controller medication, 80.1% (n=17) had a rescue inhaler, and 47.6% (n=10) used a quick-relief medication prior to exercise.

Effect of Kickin’ Asthma

The descriptive analysis for the first goal to improve asthma health-related outcomes indicated slight improvement for specific number of days for each variable (See Table H2). For number of days with asthma symptoms during the day in the previous two weeks (improvement percentage), an increase in days was reported for no symptoms (13.7%) and decrease in days for one day (-0.6%), two days (-1.8%), three days (-3.2%), four days (-4.8%), and five days (-9.5%). However, the objective to decrease student report of daytime symptoms by 60% was not met. The objective to decrease student report of nighttime symptoms frequency by 60% was not achieved. For the number of nighttime symptoms during the evening for the previous two weeks, a decrease was noted for one nighttime (-19.0%), three evenings (-9.5%), and six evenings (-

4.8%). For the objective to decrease days with activity restrictions in the previous two weeks, an increase was identified for no symptoms (8.3%) while a decrease was noted for one day (-8.0%), two days (-4.8%), three days, (-4.8%), five days (-4.8%), and six days (-4.8%). These results indicated that the objective to decrease student report of activity restricted days by 60% was not met. There was a decrease of missed school days reported for students missing one day (-14.3%), three days (-4.8%), and four days (-4.8%). The objective to decrease student absences related to asthma symptoms and illness by 60% was not reached according to these results. In review, the first goal to improve asthma-related health outcomes was not achieved by this implementation as the four objectives for this goal were not met.

The results revealed for the second goal to increase asthma knowledge, minimal improvement for specific objectives was not attained (See Table H3). The objective to increase student understanding of asthma fundamentals by 80% was not achieved as a 4.4% decrease in understanding was reported. The objective to increase student understanding of asthma symptoms, triggers, and warning signs by 80% was not met. The results revealed an increase of understanding for triggers (9.5%) and warning signs (23.2%) while a decrease for asthma symptoms (7.7%). There was no effect on student knowledge of symptoms management as the results revealed 100% of students on the pre- (n=21) and post-survey (n=16) understood this concept. The third objective to increase student understanding of asthma medication by 80% was also not achieved. The results indicated only a 17.6% increase for asthma medication understanding.

The third goal to improve student self-management skills was not achieved, although the results indicated some improvement for all objectives measured (See Table H4). The first objective to increase proper use of asthma medications among students by 80% was not met as

the results indicated a 48.2% improvement. The second objective to increase student report of proper medication use by 80% was not reached as there was only slight increases for students with a peak flow meter (4.2%), students who use a peak flow meter daily (7.7%), and students who use medication when feeling ill (3.8%). The third objective to increase correct use of asthma equipment by 80% was not met as there were only slight improvements for the equipment spacer (20.0%) and peak flow meter (27.7%).

Discussion

The Kickin' Asthma educational program is proposed to address the public health concern of the increased prevalence of childhood asthma, specifically among adolescents. As this age group continues with growth and development into adulthood, improved self-management skills and asthma knowledge is essential to promote health and prevent poor asthma related health outcomes. The evaluation of the Kickin' Asthma program was designed to ascertain the effectiveness of this intervention to ameliorate adolescent asthma health outcomes, increase asthma knowledge, and provide a foundation for successful asthma self-care management skills. The results of this project indicated limited improvement for certain aspects of asthma knowledge and asthma health-related outcomes as well as improvement overall of asthma self-management skills.

The measurement of asthma knowledge, asthma health-related outcomes, and asthma self-management skills was imperative as these three pieces interact in asthma health. The results revealed an improvement for understanding asthma medications which supported the finding of an increase for students who use asthma medication correctly as a measurement of self-management skills. In addition, as the results indicated that students did not increase in understanding to avoid triggers, this supported the finding for limited improvement of asthma

health-related outcomes. Understanding the concept to avoid asthma triggers is an important aspect of asthma management to prevent asthma exacerbation. Future implementations of the Kickin' Asthma program should increase emphasis on educating students about how to avoid asthma triggers which in turn would improve health-related outcomes.

The finding of improved asthma self-management skills indicated that students further developed the ability to care for their asthma. As all areas measured for asthma self-management indicated improvement, the education provided was effective in this area. This is significant as the adolescent population increases in independence and the ability to self-manage their asthma supports health promotion.

As the results of the evaluation indicated that the project goals and objectives were not met, there are several potential reasons. For asthma health-related outcomes, the measurement was limited to the previous two weeks which is a short-time period. This may have collected post-survey data for students during an acute asthma exacerbation. Future implementations of the Kickin' Asthma program should examine student asthma health during the previous four weeks to permit a longer time period to measure outcomes. In addition, the program was implemented during the onset of spring in which students potentially could have experienced asthma exacerbations due to seasonal allergies.

The lack of improvement for particular variables measured of asthma knowledge and asthma health-related outcomes could be attributed to external factors. The implementation of the follow-up review session was the last day before spring break. This could have hindered the data collection process as loss to follow up was 23.8% (n=5) for the final data collection period. Therefore the post-survey data may not fully reflect the knowledge attainment of the sample. Additional implementation of the Kickin' Asthma program among adolescents is necessary to

fully evaluate the program's effectiveness to translate into public health nursing practice and to improve asthma health and related outcomes.

The experience of students during the implementation of the Kickin' Asthma program was perceived to be positive. During each session student were generally engaged, maintained eye contact, asked appropriate questions, and shared related experiences to the topic discussed. Students seemed to enjoy the interactive discussions and actively participated. The game and scenarios went well and students were eager to participate. In addition the school nurse at the middle school expressed the desire to continue the implementation of the Kickin' Asthma program and potentially expand the implementation to all middle and high schools in the HCPS school system.

Conclusion

The implementation of the Kickin' Asthma program as a research translation project was effective to improve asthma self-managements skills among adolescents. The implementation of group-based asthma education programs is essential to improve adolescent asthma health and self-management. The role of the DNP in public health practice functioned successfully to translate an evidence-based intervention to improve the self-care skills and knowledge among adolescents.

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Appendix A

Diagram A1

HCPS organizational chart of secondary education (HCPS, 2013d).

Secondary Education

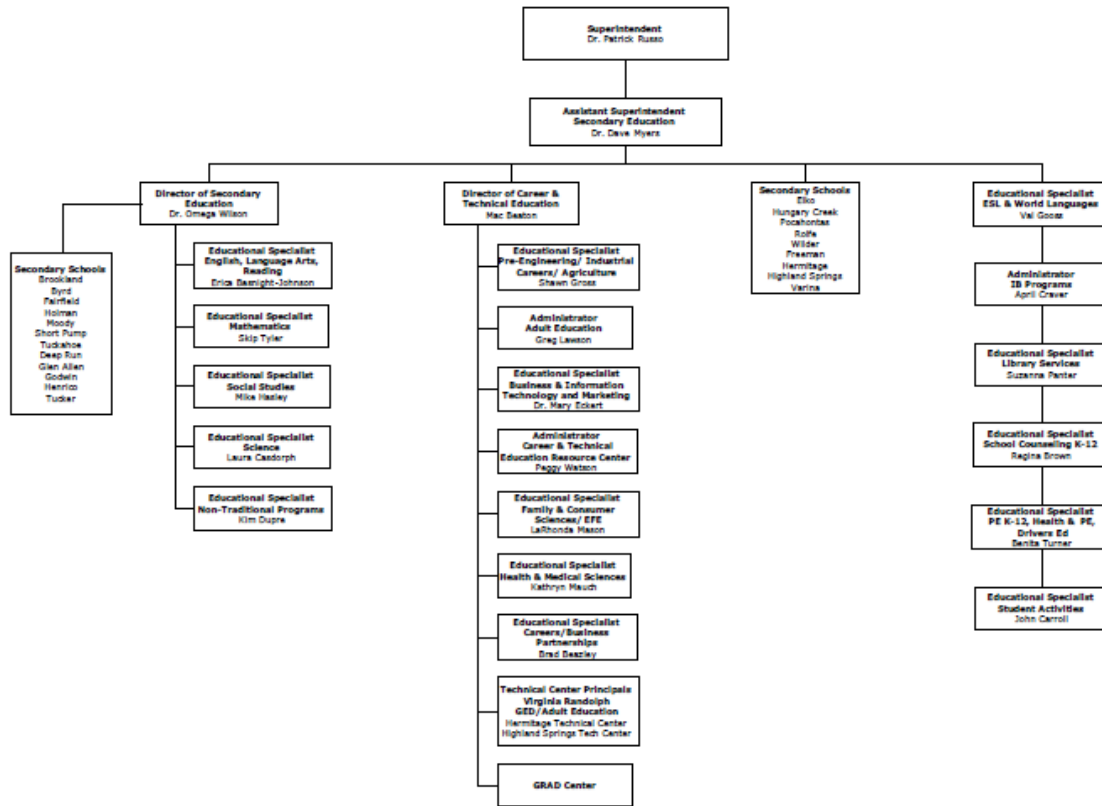
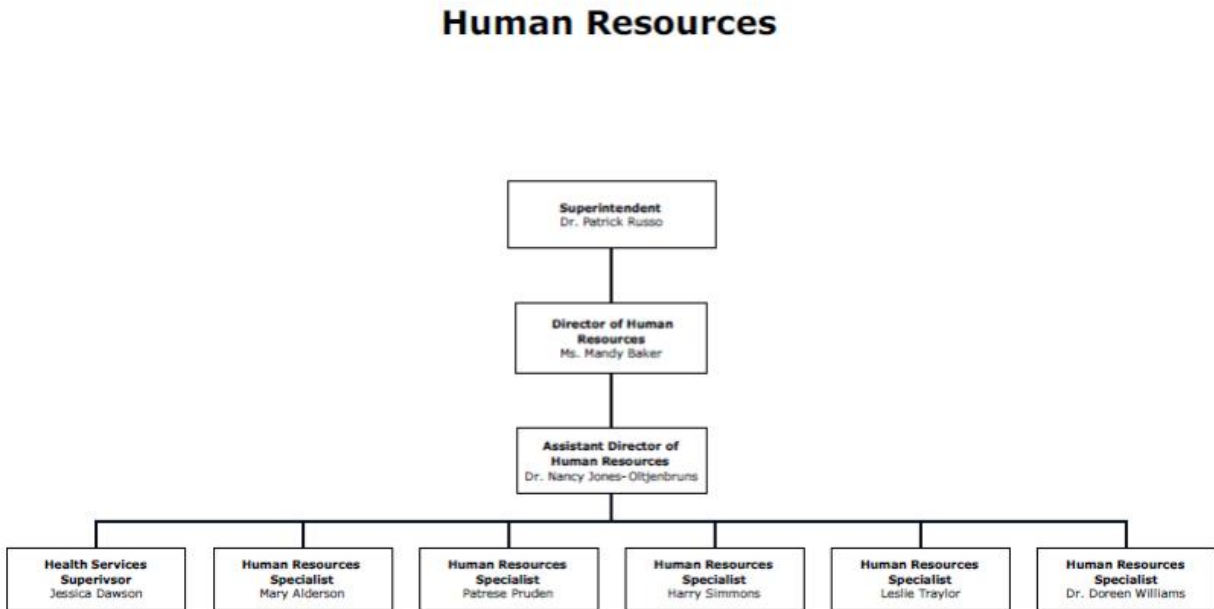


Diagram A2

Organizational chart of HCPS Human Resources Department (HCPS, 2013d).



Appendix B

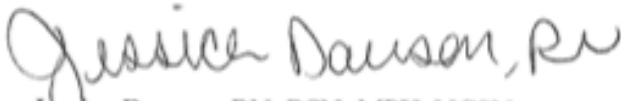
Letter B1

Dean Stephen Cavanagh
Skinner Hall 651
North Pleasant Street
University of Massachusetts
Amherst, MA 01003

Dear Dean Stephen Cavanagh,

I am writing in regards to the Doctorate of Nursing Practice student, Katherine Lawson. She is in her final semester enrolled in the course N898A DNP Final Immersion Practicum. I am serving on her Capstone Committee as her outside mentor. As the Supervisor of School Health Services, I will support her Capstone project implementation in the spring of 2014. I am pleased that she will be implementing the asthma educational program in our school system as this project will benefit our students' health.

Sincerely,




Jessica Dawson, RN, BSN, MPH, NCSN
Supervisor of School Health Services
Henrico County Public Schools
P.O. Box 23120
Henrico, Virginia 23223

Appendix C


Flyer C1

Student invitation flyer adapted from template (ALA n.d.).

**You are invited to
Kickin' Asthma !**




WHEN: March 18, 19, 20, & 21
at 9:30am
WHERE: Elko Middle School



At Kickin' Asthma sessions you will...

- Play games and have fun with other students with asthma
- Get tips to help you control asthma so you feel better
- Learn interesting information about asthma that you didn't know
- Get your own workbook to keep

**Please join us and learn
how to control your asthma in
4 fun sessions!**



Letter C2

Dear Parent/guardians(s),

March 10th, 2014

This letter requests permission for your child to participate in the *Kickin' Asthma* program at Elko Middle School from March 18th to 21st. Your child was selected to participate based on a referral by your school nurse or by your child expressing interest in the program. This letter does not indicate that there are any problems or concerns at school about your child. *Kickin' Asthma* is an asthma educational program developed by the American Lung Association. The program is scheduled during the school day and covers the following topics in four, 40 minute sessions:

1. Asthma facts and physiology
2. Symptoms, early warning signs, and asthma triggers
3. Medication and devices
4. Emergency signs, review, self-advocacy, and problem solving skills

These four sessions will build on their asthma knowledge and skills. The program's goal is to promote self-management. After the program at the follow-up review session during the fourth week in April your child will receive various school supplies for participating.

I will be implementing this program as a part of my graduate public health nursing practicum experience. If you have any questions please feel free to contact your school nurse or myself at lawsonkh@yahoo.com. If you decide for your child to participate, please send in the completed permission form at the end of this letter to your school nurse. I am looking forward to building and expanding your child's self-management skills, asthma health and wellness.

Thank you,

Katherine Lawson, R.N., B.S.N.

lawsonkh@yahoo.com

***Meeting dates to mark your calendar: March 18th, 19th, 20th, 21st at 9:30am to 10:10am
 April: review meeting date to be determined.

**** Please return this section to your school nurse by March 17th ****

I, _____ agree to allow my child, _____
 to fully participate in the Kickin' Asthma program during the school day. I will encourage my child to attend all four sessions and the post-program session four weeks after the program. By signing this form I give permission for my child to attend and fully participate in all of the program activities.

Parent/Guardian name (print): _____ Contact number: _____

Parent/Guardian signature: _____ Date: _____

Appendix D

For office only. Do not write here.	
School:	Period:
Date:	Pre-Yellow 3mo- Blue

Evaluation D1

Page 1

OVER for Page 2

Asthma and You

First name: _____ Last name: _____ Birth date: _____

These questions are about your own experiences. Please answer as truthfully as you can. If we think that your symptoms could be made better, we may share the information with your school nurse or your parent/guardian. We will talk to you first before we do this.

1. In the past 4 weeks, how often have you had coughing, wheezing, chest tightness, or shortness of breath?

- Not at all
- Less than 1 day each week
- About 1 day each week
- About 2 days each week
- Between 3 and 5 days each week
- Almost every day
- Every day

2. In the past 3 months, how often have you usually had coughing, wheezing, chest tightness, or shortness of breath?

- Not at all
- Less than 1 day each week
- About 1 day each week
- About 2 days each week
- Between 3 and 5 days each week
- Almost every day
- Every day

3. In the past 12 months (ONE YEAR) how often have you usually had coughing, wheezing, chest tightness, or shortness of breath?

- Not at all
- Less than 1 day each week
- About 1 day each week
- About 2 days each week
- Between 3 and 5 days each week
- Almost every day
- Every day

***The next question is only about symptoms you have had during the night...**

4. In the past 4 weeks, about how often have you had coughing, wheezing, chest tightness, or shortness of breath during the night?

- Not at all
- 1 or 2 nights in the last 4 weeks
- 3 or 4 nights in the last 4 weeks
- 5 to 8 nights in the last 4 weeks
- More than 8 nights in the last 4 weeks--about 2 times or more each week
- Every night or almost every night

Page 2

Fill in the blank with a number (even if the answer is "0") Answer questions 5-11 on the back!



- 5. I missed about _____ days of school because of asthma in the past 4 weeks.
- 6. My sleep was bothered by asthma about _____ times in the past 4 weeks.
- 7. My asthma made it hard for me to play a sport or exercise about _____ times in the past 4 weeks.

Just a few more questions! Keep going!

Please mark the best answer:

- 8.** I use a **spacer** with my inhaler: **All the time/usually** **Sometimes** **Never**
- 9.** I use a **Peak Flow Meter** (thing you blow into to check lungs): **All the time/most days** **Sometimes** **Never**
- 10.** In the **past 3 months**, how many times did you go to the **emergency room** or hospital because of breathing problems or asthma?
- 11.** In the **past 3 months**, how many times did you go to the **clinic** or **your regular doctor** because of breathing problems or asthma?

This section is done with instructors' help using the photos to aid student.

STOP HERE

Do you use any medication (like puffer) for asthma or breathing problems?

<p>Yes</p> <p>Do you use any even when you feel fine?</p> <p>Code _____ Days/week _____ Times/day _____</p> <p>Any other medicine used even when you feel fine?</p> <p>Code _____ Days/week _____ Times/day _____</p> <p>Do you use any before you exercise?</p> <p>Code _____ Days/week _____ Times/day _____</p> <p>Do you use any only when you have symptoms?</p> <p>Code _____</p> <p>Any other medicine used only when you have symptoms?</p> <p>Code _____</p> <p>Any other Rx or OTC meds for asthma?</p> <p>Medication _____ Days/week _____ Times/day _____</p> <p>Medication _____ Days/week _____ Times/day _____</p>	<p>No</p> <p>Yes No Ran out</p> <p>If ran out, when _____</p> <p>Yes No Ran out</p> <p>If ran out, when _____</p> <p>Yes No Ran out</p> <p>If ran out, when _____</p> <p>Yes No</p>
--	---

STOP HERE

6. Avoiding your personal asthma triggers will not help prevent you from having an asthma attack. True or False
7. Asthma symptoms include coughing, wheezing, chest tightness, shortness of breath, trouble sleeping, and difficulty breathing. True or False
8. Warnings signs of an asthma attack mean that you should use your controller medication. True or False
9. Asthma is treated with two kinds of medications, quick-relief and controller medicines. True or False
10. If you are having daytime and/or nighttime asthma symptoms for more than one day, or twice in a week, you need to see your doctor/nurse practitioner. True or False
11. Controller medications are to be used during an asthma attack. True or False
12. A spacer measures how well air flows out of your lungs. True or False
13. A peak flow meter attaches to the inhaler and helps you get more medicine into your lungs. True or False
14. Do have a peak flow meter? Yes or No
 - a. Do you use a peak flow meter everyday? Yes or No
15. Do you take medications when you are not feeling well? Yes or No

End of Survey

Thank you for your responses! Please turn this in to the program leader.

Appendix E

Letter E1

Dear Parent or Guardian:

Your child, _____, recently completed Kickin' Asthma, a four-part class taught at school to learn how to control his/her asthma. Please ask your child to share the Asthma Workbook that we used in class which covers the basics of good asthma management. After hearing from your child about his/her asthma, we recommend that:

- Your child visits the doctor right away because _____

- Your child visit the doctor:
 - Because he/she does not have asthma medicine(s), or needs a refill because he/she lost it or ran out.
 - Because your child says he/she has symptoms more than two times a week. You may want to ask the doctor for asthma controller medicine, in addition to quick reliever medicine (Albuterol). This type of medicine helps to prevent symptoms of asthma.
 - For regular asthma check-ups and to get refills for asthma medicines.

- You check that your child is using asthma medicines correctly:
 - Make sure your child uses his/her controller medicine the way the doctor says to (usually every day), even if he/she feels fine or does not feel it working right away. This medicine prevents symptoms and will make your child feel better over time.
 - Make sure your child uses quick reliever medicine (like Albuterol) only when feeling asthma symptoms and before exercising. Only quick reliever medicine will help your child feel better when feeling symptoms.
 - Your child may wish to use quick reliever medicine (like Albuterol) before exercise to prevent his/her symptoms while exercising.

Other: _____

Remember to watch your child for asthma symptoms. If your child feels symptoms (such as wheezing, coughing, trouble breathing, or chest tightness) more than two times per week, please visit your doctor to see if there are medicines that will work better for your child.

We hope your child enjoyed and learned from Kickin' Asthma. With help from you and the doctor, your child can keep his/her asthma in control!

Sincerely,

Your Child's Kickin' Asthma Instructor(s)

Phone Number _____

Appendix F

Table F1

Budget for school-based asthma education program.

	Line Item Description	Line Item Breakdown	Student Expenditure	Contributed Expenditure	Project Total
1	Personnel				\$180.00
		School nurse		\$180.00	
2	Equipment				\$40.46
		Demonstration inhaler	\$5.47		
		Peak flow monitor	\$20.99		
		Spacer	\$14.00		
3	Educational material				\$100.58
		Kickin Asthma' curriculum	\$49.00		
		Paper	\$5.79		
		Pens (box)	\$8.99		
		Respiratory system poster	\$18.40		
		Asthma poster	\$18.40		
4	Poster material				\$14.28
		Markers	\$9.99		
		Poster board	\$4.29		
5	Student incentives				\$43.81
		Gift – pens	\$7.58		
		Gift – pencils	\$7.47		
		Gift – highlighters	\$6.08		
		Gift – paper	\$19.68		
		Gift bags	\$3.00		
6	School nurse incentive				\$30.00
		Gift – Target gift card	\$30.00		
7	Miscellaneous				\$71.40
		Shipping and handling of curriculum	\$10.50		
		Travel expense – gasoline	\$60.90		
8	Total project costs				\$480.53
			\$300.53	\$180.00	

Appendix G

Table G1

Timeframe chart for implementing the Kickin’ Asthma program.

Task	Feb	March	April
Select and contact school principal	X		
Engage community (PTSA)	X		
Planning	X		
Promote Program at school	X		
Send Home Permission Forms	X		
Implement Intervention		X	
Pre-test		X	
Post-test (4 weeks post program)			X
Analyze program evaluation			X
Disseminate results			X

Appendix H

Table H1

Participant Demographics

Participant Demographics			
		Total	Percent
Gender			
	Male	9	42.9
	Female	11	52.4
	No Response	1	4.8
	Total	21	100
Age			
	11	5	23.8
	12	6	28.6
	13	7	33.3
	14	2	9.5
	No Response	1	4.8
	Total	21	100
Grade Level			
	Sixth	7	33.3
	Seventh	11	52.4
	Eighth	2	9.5
	No Response	1	4.8
	Total	21	100
Race/Ethnicity			
	African American	10	47.6
	Caucasian	6	28.6
	Other: "mixed"	1	4.8
	No Response	4	19.0
	Total	21	100
Students with Asthma Medications			
	Control Medication	9	42.8
	Quick Relief Inhaler	17	80.1
	Medication Prior to Exercise	10	47.6

Table H2

Survey results for asthma health related outcomes.

Results of Surveys - Asthma Health-Related Outcomes				
		Pre-Survey (n=21) Responses Frequency (%)	Post-Survey (n=16) Responses Frequency (%)	Difference of Percentages (Bold indicates improvement)
Daytime symptoms in previous 2 weeks				
	No Symptoms	5 (23.8%)	6 (37.5%)	13.7%
	1	8 (38.1%)	6 (37.5%)	-0.6%
	2	3 (14.3%)	2 (12.5%)	-1.8%
	3	2 (9.5%)	1 (6.3%)	-3.2%
	4	1 (4.8%)	0 (0.0%)	-4.8%
	5	2 (9.5%)	0 (0.0%)	-9.5%
	11*	0 (0.0%)	1 (6.3%)	6.3%
Nighttime symptoms in previous 2 weeks				
	No Symptoms	12 (57.1%)	10 (62.5%)	5.4%
	1	4 (19.0%)	0 (0.0%)	-19.0%
	2	0 (0.0%)	2 (12.5%)	12.5%
	3	2 (9.5%)	0 (0.0%)	-9.5%
	4	1 (4.8%)	1 (6.3%)	1.5%
	5	0 (0.0%)	1 (6.3%)	6.3%
	6	1 (4.8%)	0 (0.0%)	-4.8%
	7	0 (0.0%)	1 (6.3%)	6.3%
	14*	0 (0.0%)	1 (6.3%)	6.3%
Days with activity restrictions in previous 2 weeks				
	No Restrictions	14 (66.7%)	12 (75.0%)	8.3%
	1	3 (14.3%)	1 (6.3%)	-8.0%
	2	1 (4.8%)	0 (0.0%)	-4.8%
	3	1 (4.8%)	0 (0.0%)	-4.8%
	5*	1 (4.8%)	0 (0.0%)	-4.8%
	6	1 (4.8%)	0 (0.0%)	-4.8%
	8*	0 (0.0%)	1 (6.3%)	6.3%
	14*	0 (0.0%)	2 (12.5%)	12.5%

Missed school days in previous 2 weeks (due to asthma)				
	No Absences	16 (76.2%)	12 (75.0%)	-1.2%
	1	3 (14.3%)	0 (0.0%)	-14.3%
	2	0 (0.0%)	2 (12.5%)	12.5%
	3	1 (4.8%)	0 (0.0%)	-4.8%
	4	1 (4.8%)	0 (0.0%)	-4.8%
	6*	0 (0.0%)	1 (6.3%)	6.3%
	14*	0 (0.0%)	1 (6.3%)	6.3%

* Indicates a break in the frequency as the missing numeric had no value reported

Table H3

Survey results for asthma knowledge.

Results of Surveys - Asthma Knowledge			
	Pre-Survey Results (n=21) Correct Responses Frequency (%)	Post-Survey Results (n=16) Correct Responses Frequency (%)	Difference of Percentages (Bold indicates improvement)
Fundamentals	18 (85.7%)	13 (81.3%)	-4.4%
Triggers	19 (90.5%)	16 (100.0%)	9.5%
Avoid Triggers	9 (42.9%)	6 (37.5%)	-5.4%
Symptoms	20 (95.2%)	14 (87.5%)	-7.7%
Warning Signs	3 (14.3%)	6 (37.5%)	23.2%
Symptom Management	21 (100%)	16 (100.0%)	0.0%
Medication	16 (76.2%)	15 (93.8%)	17.6%

Table H4

Survey results for asthma self-management skills

Results of Surveys - Asthma self-management skills			
	Pre-Survey Results (n=21) Responses Frequency (%)	Post-Survey Results (n=16) Responses Frequency (%)	Difference of Percentages (Bold indicates improvement)
Students who use asthma medication correctly	3 (14.3%)	10 (62.5%)	48.2%
Students with a peak flow meter	7 (33.3%)	6 (37.5%)	4.2%
Students who use a peak flow meter daily	1 (4.8%)	2 (12.5%)	7.7%
Students who use medications when ill	19 (90.5%)	15 (93.8%)	3.8%
Student correct use of spacer	5 (23.8%)	7 (43.8%)	20.0%
Student correct use of peak flow meter	6 (28.6%)	9 (56.3%)	27.7%