



**Tailoring and Implementing Comprehensive School Health:  
The Alberta Project Promoting active Living and healthy Eating in Schools**

*Instaurer et adapter l'approche globale axée sur la santé en milieu scolaire :  
Projet albertain axé sur la promotion de la vie active et de l'alimentation saine*

**Marg Schwartz  
University of Alberta**

**Nandini D Karunamuni  
University of Alberta**

**Paul J Veugelers  
University of Alberta**

*Comprehensive School Health (CSH) is an intervention approach that moves beyond classroom-based health education models to a more integrated approach of health promotion. However, the effectiveness of CSH approaches is inconclusive, and well-designed studies are critical to justify their broader implementation. CSH program elements also need to take into consideration the individual context of schools. This paper details the implementation of the Alberta Project Promoting active Living & healthy Eating in Schools (APPLE) project where interventions were tailored to ten elementary schools in Alberta, Canada. School Health Facilitators were placed in schools to implement customized health promotion strategies that acknowledge the unique needs and barriers to healthy living in schools. The primary goals of the project are to improve health behaviors among children and to increase the capacity to promote health-related behaviors in schools. The project will also contribute to the evidence base of the effectiveness of CSH.*

*L'approche globale axée sur la santé en milieu scolaire est une intervention qui va au-delà des modèles de cours de santé traditionnels et qui mise sur une approche intégrée en matière de promotion de la santé. Puisque l'efficacité de l'approche globale axée sur la santé n'a pas été entièrement démontrée, les études de fond hésitent encore à en recommander la mise en œuvre à grande échelle. Les éléments de programme de cette approche doivent également tenir compte du contexte particulier de chaque école. Cet article relate la mise en place d'un programme de promotion de la vie active et de l'alimentation saine en milieu scolaire (projet APPLE) et explique en quoi les interventions ont été adaptées pour répondre aux besoins spécifiques de dix écoles élémentaires de la province de l'Alberta, au Canada. Des agents de santé ont été affectés aux écoles*

*et chargés d'adapter les stratégies de promotion de la vie saine aux besoins et difficultés uniques de chaque école. Ce projet vise avant tout à améliorer la santé des enfants et à aider les écoles à mieux promouvoir l'adoption de comportements sains en milieu scolaire. Les résultats de ce projet enrichiront également les bases de données probantes et aideront à confirmer la pertinence de l'approche globale axée sur la santé en milieu scolaire.*

### **Introduction**

A large body of evidence-based epidemiological, clinical and physiological studies has established the link between unhealthy behaviors such as a poor diet and physical inactivity to a growing list of chronic conditions that include obesity, hypertension, type 2 diabetes, coronary heart disease and certain cancers (Centers for Disease Control and Prevention, 2009; World Health Organization, 2006; National Cancer Institute, 2007; Warburton, Nicol & Bredin 2006). Given that chronic diseases develop over many years, the positive effects of healthy lifestyle behaviors are most beneficial when practiced throughout the lifespan. An effective way to prevent future chronic disease is to ensure that health behaviors are practiced and sustained among today's youth (Tercyak & Tyc 2006).

Canadian data show that the prevalence of overweight children and youth is rising faster than that of adults (McCrinkle, 2007), and opportunities for children to be sedentary in their leisure time have increased through greater access to television, electronic games, computers and the internet. Further, a recent study conducted in Alberta revealed that the majority of school-aged children are inactive, and a high percentage had poor diets (Plotnikoff et al., 2009). This calls for immediate action to develop effective intervention strategies designed to encourage healthy behaviors among school-aged children.

Publications issued by international agencies such as the World Health Organization (WHO) and the Centers for Disease Control and Prevention (CDC), as well as several peer-reviewed articles, suggest that Comprehensive School Health (CSH) is an intervention approach that moves beyond classroom-based health education models to a more integrated approach of health promotion (Stewart-Brown, 2006; Centers for Disease Control and Prevention, 1996; Deschesnes, Martin & Hill, 2003). This multifactorial approach encompasses the whole school environment with actions addressing teaching and learning, physical and social environments, healthy school policy, and partnerships and services (Joint Consortium for School Health, 2009). However, despite the tremendous potential of these initiatives, only rarely are they put into practice, and thus their effectiveness is still inconclusive (Deschesnes, et al., 2003; Shaya, Flores, Gbarayor & Wang 2008; Wilson, O'Meara, Summerbell & Kelly, 2003). Although different organizations such as Joint Consortium for School Health (JCSH) and the International Union of Health Promotion and Education (IUHPE) have listed the essential elements of CSH, there is still no consensus on the indicators of these essential elements. Further, while some aspects of CSH are consistent and can be implemented regardless of the individual context of schools, there are many program elements that need to take into consideration the individual context of schools and other unique factors that relate to specific settings that affect the school culture. Well-designed studies that examine the effectiveness of CSH initiatives and define all elements of the CSH model are

critical to evidence-based health policy, and to justify broader implementation of successful school-based programs.

The purpose of this paper is to describe the conceptualization, tailoring and implementation of the APPLE Schools project (Alberta Project Promoting active Living & healthy Eating in Schools). The project incorporated design elements of the successful Annapolis Valley Health Promoting School Project (AVHPSP) (Veugelers & Fitzgerald, 2005) that is concurrently expanding its capacity from its original seven schools to all 40 schools of the Annapolis Valley Regional School Board in Nova Scotia. The experience with the AVHPSP indicated the importance of a continuous presence in the schools and, therefore, the APPLE Schools project tailored intervention strategies to each of its schools. Since the APPLE Schools project is well resourced, the intervention includes full-time School Health Facilitators placed in each of the schools to address the unique needs and barriers to healthy eating and physical activity. To the best of our knowledge, this is the first project to implement CSH through the use of full-time facilitators in each school.

The goal of the APPLE Schools project is to improve healthy eating and active living among elementary school children; to increase the capacity of the school community to address health-related behaviors and to foster a healthy school environment. This feeds into the long-term goal to prevent overweight and reduce the risk for chronic disease in the long term. The project will also contribute to the evidence base of the effectiveness of CSH and help identify successful elements of school-based programs.

### **Methods**

The APPLE Schools project was launched in April 2008 at ten schools in the province of Alberta, Canada. Table 1 displays the project timeline and the components of the development and implementation of the project. The project launch included high profile attendees and garnered broad media attention. Through a collective effort, the acronym of APPLE Schools was created to give an identity for the project. The tag line “*Make the Healthy Choice the Easy Choice*” was used to describe the approach that originates from the AVHPSP which uses the same tag line. A website containing information relating to the project geared for the general public was also created, and can be found at [www.appleschools.ca](http://www.appleschools.ca). Each APPLE School is visibly identified through banners, bulletin boards and decorated offices. A local distributor provides the schools with fresh apples daily. The project is privately funded by a generous donation to the School of Public Health at the University of Alberta.

Table 1.

*Development and implementation of the APPLE project: intervention components and processes.*

<i>Timeline</i>	<i>Intervention Components</i>	<i>Intervention Processes</i>
<b>Preintervention/Intervention</b>		
June 2007	Proposal submission by current director	Initiating work plan
October 2007	Hiring of the school health manager and school health facilitators	Approaching five school jurisdictions to identify ten 'at risk' schools in Alberta. Complete hiring processes for 10 school health facilitators
November 2007	Forming research advisory committee	Research Advisory Committee for the project is put together comprised of key nutrition and physical activity researchers of school-aged children
November to December 2007	Six- week training session for school health facilitators	School health facilitators acquire knowledge, skills and attitudes to implement the project
January 2008	School health facilitators placed full-time in schools	School health facilitators build relationships with staff students, parents and administration
February 2008	Creating a name and visual identity for the project	Through a collective effort, Acronym APPLE Schools created with the tag line " <i>Make the Healthy Choice the Easy Choice</i> "
April 2008	Official launch of the project	Received broad media attention. APPLE Schools are visibly identified through banners, bulletin boards, decorated offices. A website is created
<b>Evaluation: Process evaluation</b>		
Ongoing	Facilitators document activities and experiences	Facilitators take notes on frequency and variety of activities that are being enabled categorized as: Education, Services and Supports, and Physical and Social environments, and record their experiences in schools
<b>Evaluation: Outcome evaluation</b>		
March 2008	Collecting baseline (pre-intervention) data	Researchers in teams of two will visit the schools to administer the questionnaires
March 2009, 2010 and 2011	Collecting on-going and post-intervention data	

### **Project design**

Figure 1 displays an overview of the intervention and expected outcomes. The project will run for three and a half years, and summer months of each year will be used to review the results of the evaluations conducted during the spring of each year (Figure 1). Based on this review and by obtaining input from experts and practitioners, the interventions in each school will be fine-tuned, modified and further customized to each school.

An Advisory Committee for the project is comprised of key nutrition and physical activity researchers from various faculties within the University of Alberta, including the School of Public Health, Faculty of Education, Faculty of Agriculture (Food Sciences), and Faculty of Physical Education. The Advisory Committee further includes a Regional Health Promotion Coordinator (Regional Health Authority, now known as Health Services), and the NGO currently mandated to implement CSH in Alberta and the agencies that oversees implementation of school-based programs for Alberta Education.

The APPLE Schools project and its evaluative research were approved by the University of Alberta's Human Research Ethics Board and by participating school boards and schools.

### ***School Selection***

The APPLE Schools project approached five school jurisdictions to identify ten schools from a variety of demographics (i.e., urban, rural, French immersion, Public and Separate). The inclusion criteria for participation stated that schools:

- have a configuration that includes Grade 5
- demonstrate a need for better nutrition and promotion of healthy living: This decision was made by a ranking system which took into account factors such as lower socio-economic status
- support the interventions and participate in ongoing and new research that may be presented within the time frame
- commit to a three and a half year involvement
- provide office space for the facilitator and access to infrastructure support such as telephones, photocopy and fax machines
- include the facilitator as part of the school staff, and participate in meetings of administrators and facilitators.

Schools also had to have no current involvement with health promotion programs such as Ever Active Schools, AISI (Alberta Initiative for School Improvement) or the Public Health Agency of Canada projects that may interfere with the ability to measure impact of the intervention. Finally, the schools had to be comprised of a relatively stable population; i.e., the annual attrition rate of the school needed to be below 50%. The schools were chosen in consultation with identified school authorities within a geographic parameter determined by the availability of facilitators to relocate to rural locations and, in some cases, access the schools by public transit. All selected schools accepted the invitation to become an APPLE School, and each school listed its current areas of priority, current partnerships, policies, resources, programs, services or other ways that the school community was involved in the promotion of nutrition and physical activity. This information was valuable in customizing the intervention to each school.

### ***School Health Facilitators***

School health facilitators were selected based on their education, relevant experience, including experience with children, and a passion for working in schools. Their willingness to commit to three and a half years was also a factor in the final selection. The selected facilitators have diverse backgrounds in nutrition, physical activity, education and management. The facilitators are employed in schools as an integral member of the school staff, and report to the school principal as well as the project administration.

All facilitators underwent a six-week training session. They were surveyed prior to the training program to determine their needs in terms of knowledge, skills and attitudes to implement the program. It was also ensured that the facilitators had opportunities to share their personal expertise during the training. The training covered topics such as understanding the CSH approach, goals and evaluation of the project, resources that can be accessed to support school health promotion, and building people skills to foster collaborative working relationships with parents, teachers, students, administrators, other facilitators and key stakeholders in the community.

The instructions given to the school health facilitators were to build on successes of each school's current health promoting activities and policies and engage all stakeholders within the school community to address the unique needs and barriers to healthy eating and active living in each school. They spent their first months in schools learning more about the school and developing and building relationships with staff, students, parents and administration. It was important for them to move cautiously and strategically proposing and implementing changes, as bringing about change too quickly could result in resistance, counteracting long term successes. Since the facilitators work in the schools on a full-time basis, during these initial months they were able to carry out many casual discussions with students, teachers and parents. They observed and participated in recess and in the delivery of meal programs. They also had opportunities to observe the schools' social and physical environments such as vending machine placement and usage, fast food and convenience stores in the vicinity, and teacher-student interactions. These casual interactions gave the facilitators the opportunity to observe the school in a non-threatening way, and enable them to brainstorm ways of addressing some of the issues on promoting healthy behaviors.

The facilitators provide peer support to one another and are "critical buddies" who join together on various projects and events at each school. The facilitators continue to receive professional development throughout their engagement in the project and have opportunities to share work experiences and successful resources with other facilitators. A secured website for the facilitators has also been created to enable them to store information within a searchable database. Items include materials prepared for teachers, outlines for whole school events, health fair ideas, useful web links, items relating to relevant research, curriculum-related materials, community connections, student leadership, professional development, specific information related to nutrition or physical activity, and a folder for project administration-related issues. Each facilitator keeps track of the frequency and variety of activities that are being enabled through the project.

### ***Project Details & Customizing to Schools***

All activities in the APPLE schools focus on making the healthy choice the easy choice. They cover all elements of the CSH model, and are described below under the subheadings of (1) Education (2) Environment (3) Everyone, and (4) Evidence. These headings were used to guide actions of the APPLE Schools project when it was initially developed, and they follow the Ever Active Schools implementation model (see: [www.everactive.org](http://www.everactive.org)).

#### ***Education***

The school health facilitators make numerous resources on nutrition and physical activity available to teachers. These include lesson plans, planning tools, handouts, teacher guides, as well as promising practices and educational kits. Bulletin boards display informative messages that focus on healthy lifestyles, where topics are changed monthly and are integrated into student lesson plans, parent newsletters and teacher support materials. Many activities in APPLE schools are appropriately matched to seasonal changes in Alberta weather, and incorporate different themes for each month. Education of parents, teachers and students are all part of the education category and various activities are undertaken to provide quality learning experiences for all of the target audiences. More detailed information on these interventions can be found in the APPLE Schools website, [www.appleschools.ca](http://www.appleschools.ca).

#### ***Environment***

APPLE Schools attempt to make the healthy choice the easy choice by promoting positive physical and social environments within each school. For example, APPLE Schools provide healthy food menu offerings that are affordable and follow Alberta Health and Wellness Nutrition Guidelines (2007). Facilitators work with local vending machine companies in partnership with the school jurisdiction staff to ensure healthy food choices are available. Various fitness-related activities such as running clubs, dance clubs, skipping clubs, walking initiatives, yoga clubs, playground programs, Go Girls/Go Boys groups, and weekly intramurals are organized to provide a variety of activity choices for students. APPLE schools have easy and ready-to-use equipment in classrooms (called Daily Physical Activity bins or DPA bins) along with easy to follow instructions. Schools regularly organize whole school activities where students collectively take part in a wide variety of contests, promotions and events. Healthy foods are replacing unhealthy 'junk' food in the classrooms, at special events and in all places food is served in schools. Steps have also been taken in APPLE schools to improve access to after-school physical activity facilities and programs and to improve traffic safety so that students are more likely to walk and cycle to school.

These examples are not inclusive of all activities but provide an overview of samples. All schools were asked the question, "How would you know you were in a healthy school?" as well as "How would you know you were in an APPLE School?". Each school has used these discussion questions to critically reflect on their school environment and make appropriate changes.

*Everyone*

Interventions in APPLE schools attempt to include everyone in the school environment and be inclusive of all stakeholders. Schools often send home handouts to parents and guardians containing information, helpful tips, recipes and season-appropriate activity ideas. The Facilitators help the school communities reflect on who is NOT participating, e.g., students without lunches, those not playing activities at recess; so that all school members can benefit from the intervention. For example, a school having a high ethnic community translated their monthly newsletter to Punjabi in order to impact a wider audience.

Staff members of APPLE schools are also encouraged to adopt healthy living practices, and schools attempt to provide equitable opportunities to all students. Depending on the needs of the school, facilitators have formed effective partnerships with other organizations, such as local health authorities, Big Brothers/Sisters coordinators, Kids in Action coordinators, Alberta Agriculture and Alberta Milk, for example. APPLE schools also provide training for school food service personnel to ensure healthy practices in schools. The Everyone category helps schools look at sustainable partnerships and services that will be part of the school culture after the intervention is complete.

*Evidence*

One of the ways that helps school communities move forward in a strategic manner is to help them plan for the future. The future needs to be determined by all of the stakeholders in the school community, so all APPLE Schools have created an 'APPLE Core Committee' comprised of parents, students, administrators, teachers, and community stakeholders. This committee meets at least three times a year to provide recommendations that support the development of a healthy active school. The committee also receives input as appropriate from school community members and/or outside organizations to collaboratively identify goals and to bring about sustainable changes in school, home and community environments. In the spring of each year, the committee completes a Health Assessment Tool for Schools (HATS) survey which was especially developed to be used in the Alberta context. Ever Active Schools ([www.everactive.org](http://www.everactive.org)) developed this tool in partnership with the APPLE Schools program to help assess the strengths and weaknesses of each school and identify each school's capacity for health promotion. It consists of a series of checklists that help school communities define the essential elements needed to become a healthy school community and provides an assessment of the school's current capacity. This information is used in mapping the assets available to the school community and in setting specific goals for schools that guide their yearly action plans. During the school year, these action plans are implemented and provide an opportunity to reflect on achievement of goals and objectives throughout the project. As of June 2009, all APPLE schools have strategic plans in place based on the results of the HATS assessment and planning tools.

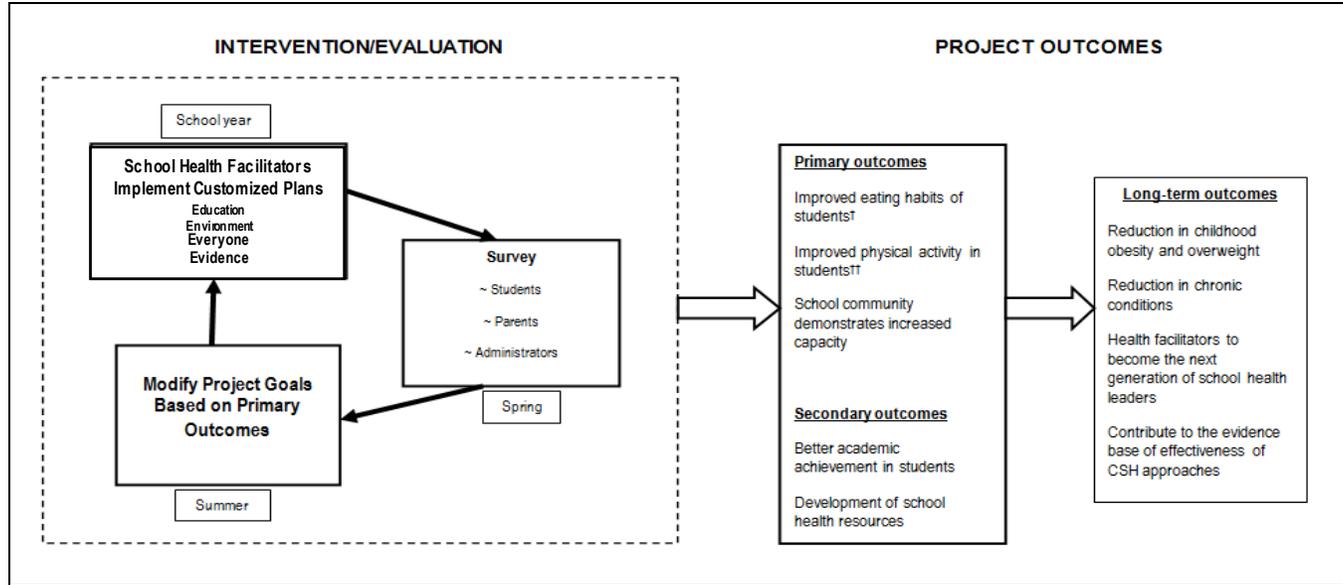


Figure 1. An overview of APPLE project intervention, evaluation and expected outcomes.

† The specific goal is to achieve 60% of students in 5 out of the 10 participating elementary schools to eat in accordance with Canada's Food Guide to Healthy Eating

†† The specific goal is to achieve 60% of students in 5 out of the 10 elementary schools to be physically active in accordance with Canada's Physical Activity Guides for Children and Youth

### ***Project Evaluation***

Information letters containing objectives and procedures of the project, parental questionnaires and consent forms are distributed among grade 5 students to take home to their parents or guardians. Evaluative research focuses on grade 5 students and their parents with measurements collected in the spring of each year; i.e., spring 2008 (pre-intervention) and spring of 2009, 2010 and 2011 (post-intervention). The child's name is only used to identify participating students and to make the link to parental information. Once the coding of participants has occurred, the collected information is detached from all personal identifiers to secure privacy.

Questionnaires used in the project are similar to those of the research conducted in the AVHSP (Veugelers & Fitzgerald, 2005). The Harvard Youth Adolescent Food Frequency Questionnaire (YAQ) is used to gather information on eating behaviors and to assess dietary intake (Rockett, Wolf & Colditz, 1995). Physical activity is measured by asking the students to report the number of engagements in organized sports and leisure time physical activities and their enjoyment of physical education in school (Kowalski, Crocker & Faulkner, 1997). The number of hours students engage in sedentary activities such as watching television, using the computer, and playing video games are also assessed (Veugelers & Fitzgerald, 2005). Further, the children's self-efficacy for engaging in health promoting behaviors is measured. Researchers in teams of two visit the schools to administer the questionnaires. The student surveys take approximately 60 minutes to complete. As of 2009, data collection of physical activity further includes the use of time-stamped pedometers that contain software functions that enables electronic storage of steps per hour to objectively measure children's activity. These devices allow us to discriminate physical activity during school hours and outside of school hours. Student's height and weight are assessed objectively in order to calculate their body mass index (BMI). This weight measurement was conducted by a trained assistant using a calibrated scale with an external digital display which is out of view of the students and accessed only by the research assistants. The measurement information is not provided to the students to ensure that no comparisons between participants are made.

The survey for parent/guardian includes questions on family factors, parental attitudes, support for activity and nutrition policy in schools, neighborhood factors and socioeconomic background. This survey takes 5 to 10 minutes to complete.

The surveys in the APPLE School will allow researchers to document and characterize changes in the 10 schools between 2008 and 2011. We also conduct the REAL Kids Alberta (Raising healthy Eating and Active living Kids in Alberta: REALKidsAlberta.ca) survey to evaluate a Provincial program through survey in the spring of 2008 and 2010. As this survey includes 148 randomly selected schools across Alberta, it will allow us to describe document and characterize changes throughout Alberta. As we use identical surveys for APPLE Schools and REAL Kids Alberta, we can make cross comparisons.

Reports based on the surveys are sent to each of the APPLE Schools. The report contains aggregated information on the students' eating and physical activity behaviors as well as parental support of these behaviors along with student sedentary activities. A school average for each of these behaviors is

presented in a bar-graph format alongside the average of the 10 APPLE Schools and the provincial average obtained from the REAL Kids Alberta evaluation. This allows the schools to assess their areas of strengths and needs. Principals are encouraged to share the information with the school's staff, the school council and parents. As such, these results of the evaluation can be used to further customize the project for the next school year (Figure 1).

## Discussion

Childhood is an optimal time in development to promote healthy behaviors, as children are still in the process of adopting established lifestyles (Wurtele, 1995). Many of these behaviors carry on into adulthood and have a significant impact on long term health. Studies have suggested that the development of chronic conditions is strongly affected by behaviors learned in childhood; making primary prevention of these conditions feasible (Tercyak & Tyc, 2006). This paper describes how the CSH approach, an internationally recognized framework for addressing school health in a planned, integrated and holistic way, was tailored and implemented in ten elementary schools in Alberta, Canada

Informal comments by children, parents, teachers, principals, school trustees, superintendents, MLA's and the Premier indicate that the project is important, timely and very well received. Many teachers have expressed that they feel lucky to be part of this project. The students show very positive responses and are requesting to volunteer in the snack programs and other project initiated events. Staff members have reported that students bring healthier food to school, create less garbage, demonstrate more excitement about nutrition education, and are very aware of healthy snacks and critique each other's snacks. One facilitator that conducted in-house surveys indicated that parents report students are more aware of what they eat at all times. The REAL Kids evaluations conducted in APPLE Schools had a response rate of 75%, which is exceptionally high considering that school based research that requires parental consent generally has low response rates (Finn-Aage, Melde, Taylor, & Peterson, 2008). The high response rate probably reflects the commitment of the School Health Facilitators. APPLE Schools has also received provincial and national attention, and numerous requests for presentations and participation on committees, along with media requests. Recognition is further demonstrated by funding and donations that have been received from local clubs, businesses, parent councils and organizations. Over \$15,000 has been gathered in outside donations. One school has also received a Merit Award from the ChooseWell Challenge awards presented by Alberta Health and Wellness. All this is further evidence of the positive perception of this project.

The literature suggests that early food experiences have important effects on food preferences and eating patterns in later life (Birch & Fisher, 1998). As a result of the APPLE Schools project, children are introduced to fruit, vegetables and snacks that they may not have tried otherwise. Relating to opening a '*Health Hut*,' one facilitator commented that they sold everything that was prepared for four recesses on its opening day, and that children waited in line for 15 minutes to get carrot sticks, snap peas, yogurt tubes and cheese strings. It was a surprise to many facilitators that spinach leaves were often the student's favorite food when offered with other vegetables. One school changed its "*Cool Treats on Fridays*" menu from ice cream bars to smoothie popsicles made from yogurt, fruit and pure

juice, which sell out each week. Another school that started a morning snack program has been very successful in feeding between 100-120 students daily. The evidence to support the creation of healthy environments where the *“healthy choice is the easy choice”* is becoming stronger each month in the APPLE Schools.

### *Gathering Voices*

There has not yet been formal publication of teacher’s responses to the project. However, the health behavior of school staff members have been anecdotally reported to the Facilitators and the teachers seem to be positively affected as a result of the project. Staff have commented on increased physical activity levels and improved healthy eating behaviors as a result of staff wellness programs. Chocolate and candy on staff room tables have been replaced by hummus and fresh vegetables. One school created Wellness Wednesdays for the staff based on requests for a staff fitness club, and the principal from one school reported to the project manager that he felt the staff pedometer challenge resulted in his 12 pound weight reduction. All of these examples demonstrate changes to the school environment that are key to implementation (World Health Organization, 2006; Stewart-Brown, 2006; Joint Consortium for School Health, 2009). Facilitators were able to bring about gradual change conducive to promoting healthy behaviors. One facilitator that observed candy being given as rewards to children provided handouts to all teachers about alternate treat ideas that can be given out to children. The facilitators also provided teacher resources as needed, and since they interacted frequently with the teachers, they were able to obtain feedback. If teachers did not use the resources, the facilitators were able to find out the reason and take appropriate action. Other facilitators brainstormed ways of getting parents and volunteers involved in school activities. Facilitators were also able to get input from individuals who were already connected with the local community that had the potential of forming partnerships to address problems. While addressing the needs of the school, the facilitators were respectful of not ‘over-resourcing’ or overwhelming the teachers with additional demands. The need for dedicated staffing to help implementation is just beginning to be explored (School Health Coordinators as Change Agents, 2009) and the APPLE School project with contribute strongly to this literature.

The APPLE Schools project is building community capacity by increasing knowledge, skills and access to resources for school communities, empowering them to serve as their own health promotion experts and problem solvers. Capacity building at the community, organizational and individual level is the key to project sustainability (Chinman, et al., 2005 ). The searchable website where facilitators store and share information contains numerous resources and specific ideas relating to promoting healthy lifestyles in schools. The long term vision for this web site is to share information with health promoting schools around the world containing best practices in the school setting. Some of the APPLE Schools have taken steps to align their school’s three year business plan with the strategic plan for the intervention. This alignment is important for strategically positioning the project within the school operating framework. School-based healthy eating and physical activity programs can reach almost all children in the school from a variety of backgrounds. By getting the parents involved, the project has the potential to impact the health of the greater

community. (World Health Organization, 2006, Joint Consortium for School Health, 2009).

It can be speculated that young people who practice healthy behaviors and are actively engaged in physical activity or sports after school are less likely to become involved in drug use, alcohol abuse, sexual experimentation, violence, and delinquent behaviors (Sallis et al., 2000). A longitudinal study investigating young people's mental health found evidence of an association between protective factors such as individual resilience, coping, connectedness to schools, caring adults and peer group and social support, and better educational outcomes (McNeely, Nonnemaker, and Blum, 2002). A recent review also suggests that school health programs hold promise for improving academic outcomes for children (Murray, Low, Hollis, Cross & Davis, 2007). Further, a recent Canadian study of 5000 10–11-year olds (Florence, Asbridge, & Veugelers, 2008) found the nutritional status of students to be closely linked to their academic outcomes. Following these lines, the APPLE Schools project hopes to investigate a wide variety of health related-behaviors, (e.g., the relationship between diet quality and school performance) in future evaluations. Further, a cost-effectiveness analysis will be conducted to weigh program costs of the APPLE Schools project against health care costs.

### **Conclusions and Future Directions**

The APPLE schools project was successfully implemented in all participating schools. Baseline data of the project and the first installment of post-intervention data were effectively collected in the March of 2008 and 2009 respectively. The data analyses are in progress to determine the effects of the intervention on knowledge, attitude, self-efficacy and health behaviors (eating and physical activity) of students. Analyses will also investigate if the school community demonstrates increased capacity to promote health-related behaviors. These results will be published in a forthcoming paper.

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