5.5.2 SPECIFIC AIMS

Experts agree that improving the whole school food environment is an important strategy to confronting the obesity epidemic, yet the National School Breakfast Program (SBP) is a neglected area in the research literature. Unlike the school lunch program, participation in the SBP appears to uniquely protect against excessive weight gain. However, the SBP is underutilized nationally and less than half of low-income children participate. Currently, only 17.1% of students nationally participate in the SBP and participation decreases as grade levels increase with only 10.1% participation among high school students. Implementation and evaluation of strategies that expand and promote the SBP are a priority among national sponsors of school meals and anti-hunger advocates. The goals of this intervention study are to implement best practice strategies to expand and promote the SBP and test the impact upon 1) student participation rates, based on reimbursable meals served, 2) overall student caloric intake and diet quality and 3) body mass index and percent body fat in a random sample of 800 high school students in 16 rural Minnesota (MN) school districts. Best practice strategies drawn from federal and industry sources to expand SBP participation include improving access through school-wide policy and practice implementation (i.e., grab-n-go menu, service in the atrium) and promote participation by addressing normative and attitudinal beliefs through a school-wide SBP marketing campaign (i.e., tasty foods, for all students) and providing positive interactions that encourage eating school breakfast with social support from peers and school personnel (i.e., eating in the hallway, classroom). University Extension staff living in and serving the schools and communities will assist school food service directors with all aspects of SBP best practice implementation. This work is important because breakfast eating is positively associated with healthier weights, diet quality and academic performance among children and adolescents. The focus on rural schools is of particular importance as significantly fewer healthy food policies and practices exist in small town and rural schools than in urban or suburban schools. Furthermore, obesity rates among rural youth are as much as 50 percent higher than their urban counterparts. A team of investigators with expertise in successful implementation of multi-school trials, school-level interventions, and state of the art youth diet and anthropometry measures propose the following aims.

The primary aim will be accomplished using a group randomized cohort study with a sample of 16 rural Minnesota schools representing about 13,000 high school students.

A.1. School-wide Primary Aim: Improve participation in the SBP among high school students. 
Hypothesis: School-wide SBP participation will be higher in the intervention versus comparison group.

We will accomplish the following secondary aims using a random subsample of 800 incoming 10th and 11th grade students.

A.2. Student-level Secondary Aims
Secondary Aim 1: High school students in the intervention condition will decrease their rate of weight gain relative to height gain as measured by change in body mass index and percent body fat compared to students in the control condition. 
Hypothesis: Body mass index and percent body fat will be maintained or reduced in the treatment versus control group.

Secondary Aim 2: High school students in the intervention condition will maintain or decrease their energy intake while improving dietary intakes of low fat dairy, whole grains and fresh fruits compared to the control students.
Hypothesis: Energy intake (measured by 3, 24-hour recalls) will be maintained or reduced and intakes of low fat dairy, whole grains and fresh fruits will increase more in the intervention groups.

Secondary Aim 3: Compared to students in the control condition, high school students in the intervention condition will report receiving more support to eat school breakfast. Support will be social (increased peer and school support) or related to the school environment (satisfaction with serving locations and times, eating locations, foods and increased availability of low fat dairy, fruits and whole grains for breakfast).
Hypothesis: The treatment group will report receiving more social and school environment support for eating school breakfast than the comparison group (measured by a student survey).

A.3. Exploratory Aims
School-wide aggregate and student-level cohort data on absences, grade point averages, nursing visits and disciplinary events will be evaluated.