

Body Mass Index (BMI) Surveillance Kit

Developed by the Chula Vista Elementary School District



To support **healthy**, **safe** and **thriving** communities in
San Diego County



Coast2CoastRx

Funded in part by San Diego County's Coast2Coast Rx discount prescription card program

The Chula Vista Elementary School District created this BMI Surveillance Toolkit with additional input from the County of San Diego Health & Human Services Agency. The majority of the original toolkit documents remain unchanged; however, some documents were adapted and additional materials were added to further improve the user friendliness of the toolkit. The information shared is meant to serve as a resource to school districts wishing to conduct similar surveillance projects. Not all documents in this toolkit are meant to serve as templates; several are intended to serve as examples. Schools should adapt documents as needed.



GREG COX
CHAIRMAN

San Diego County Board of Supervisors

Dear School District Administrators:

Our San Diego County Board of Supervisors recognizes the vital importance of promoting the health and well-being of our children and families in San Diego County and the connection between good health and optimal learning.

We know that nearly 40% of California children are not physically fit and we also know that childhood obesity has increased dramatically in recent decades. Schools play a significant role in supporting the health and well-being of their student body.

As a means toward actively addressing this issue, we encourage school districts countywide to adopt and implement a Body Mass Index (BMI) surveillance program. Establishing a BMI surveillance program will help school districts plan and develop more effective learning environments that encourage and enhance healthier nutrition and physical fitness habits amongst students and their families.

The Chula Vista Elementary School District developed and implemented a model school wellness policy in 2007. In order to measure the effectiveness of the wellness policy, the District developed the BMI surveillance toolkit. In collaboration with them, we have brought together community partners to create a synergistic approach to combating childhood obesity and improving the health and learning abilities of our County's children.

The District is an active member of the Healthy Communities South Region (HCSR) *Live Well San Diego* Leadership Team and serves as the school subcommittee's co-chair. The committees serve as a forum for disseminating lessons learned and with the help of partners, creates strategies to improve areas around schools that have the most need.

On behalf of the County Board of Supervisors, I am proud to share with you this important BMI Surveillance toolkit.

We hope you find this information helpful.

Sincerely,

A handwritten signature in black ink that reads "Greg Cox".

GREG COX
Chairman

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CHULA VISTA ELEMENTARY SCHOOL DISTRICT

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EACH CHILD IS AN INDIVIDUAL OF GREAT WORTH

September 2013

Dear School or District Administrator:

As many of you may know, children's health is at greater risk because of childhood obesity, poor nutrition, and lack of physical activity. The Chula Vista Elementary School District (CVESD) knows how important good health is to learning.

Over the past several years, CVESD has partnered with the County of San Diego Health and Human Services Agency to promote healthier learning environments in our schools and community. In 2010, CVESD launched a Height and Weight Surveillance Project getting a "first look" at grade, age, gender, ethnicity, school, and District measures of our students. Over a six-week period, we measured the height and weight of approximately 25,000 students in all 44 District schools.

The County's Community Health Statistics Unit and Public Health Services provided much-needed technical assistance converting the raw data into Body Mass Index (BMI) measures for district, school, and grade-level analyses. The results were quite sobering. Based on the 2010 study, we discovered that almost 40% of our students were at an unhealthy weight. By the time they entered first grade, almost half of the girls and one of every three boys were overweight/obese and by the time they reached the sixth grade, one of every four students was considered obese. We could not let this pattern continue; if we did, by the time they reach the age of 30, many of these individuals will suffer from significant health issues such as high blood pressure and diabetes.

Additionally, studies show this could drain our local health care system anywhere from \$2 to \$20,000 per individual every year. If we don't act now to counter this trend, we run the risk of raising the first generation of children that is sicker and dies younger than their parents.

That is why it is crucial we continue to educate our children about making smarter choices in the food they eat. However, we cannot do it alone; parents must also do their part in setting a good example in establishing and following healthy eating habits at home. Our schools and parents must also set aside time for students to participate in regular exercise and physical activity. Our communities must provide safe parks, playgrounds, and other areas where both children and adults can exercise.

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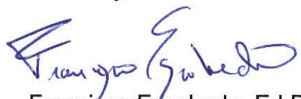
The 2010 Height and Weight Surveillance Project was our catalyst to plan and take action. Results were communicated to Board of Education Members, principals, staff, parents, community members, and beyond. One of the most significant changes was completely revising the District's Wellness Policy. Our improved Wellness Policy, formally adopted in May 2012, features stronger food and activity guidelines; planned improvements in Child Nutrition Services reducing fat, sugar, and salt ahead of federal and state requirements; and better communication and monitoring strategies.

In 2012, we repeated the Height and Weight Surveillance Project, measuring close to 26,000 students. Remarkably, we saw a 3.2% decrease in the number of obese students, and an increase of 3.2% of students in the normal weight range. Furthermore, instead of seeing a climbing-stairs increase by grade level, we saw the number of students in the obese range decline by 5.1%.

We can honestly say we are headed in the right direction. Our plan is to continue to monitor our progress by biennial height and weight measurements and by creating opportunities for healthier learning environments that encourage healthy eating and life-long physical activity habits. On April 17, 2013, the Board of Education passed a resolution to formally adopt the County of San Diego's *Live Well San Diego* ten-year initiative that supports healthy, thriving, and safe communities. The District was honored by the County of San Diego's Board of Supervisors for becoming the first *Live Well San Diego* school district.

Our efforts were aided by the collective response of health professionals and public/private agencies. We encourage you to use the Toolkit to enhance efforts throughout our communities to improve student health and wellness.

Sincerely,



Francisco Escobedo, Ed.D.
Superintendent

The Chula Vista Elementary School District Story

By Sharon Hillidge, Wellness Resource Teacher and CVESD/CTG PE/PA Project Lead

It all started with a question – how healthy are CVESD students?

This single question began our District's journey to measure and collect information about our children and their learning environments. We believed that having specific BMI information gathered from our own students would serve as a baseline for more strategic wellness planning and policy development across the district and within our schools.

A little history: prior to 2010, the only measurement available specific to student's height and weight (Body Mass Index or BMI) was acquired from the state mandated 5th grade physical fitness test. Considering Chula Vista Elementary School District is a kindergarten through 6th grade school district, the 5th grade results proved to be "too little, too late" to affect any significant change in our graduating 6th graders.

So we came up with a plan and put it into action. We measured over 25,000 CVESD students in 44 elementary schools in six weeks. We entered the raw data into our district eSchoolPlus system and re-checked for data errors. We struggled with how to interpret the data into "user-friendly" information. We asked for help, and the County of San Diego Health and Human Services Agency (HHSA) Community Health Statistics Unit came to our aid. They helped us translate our results into easily understood charts and tables. With the help of our CVESD Facilities Department, we created our own district-school boundaries obesity map to visualize results across the district as well as in our community.

What we discovered was startling: almost 40% of our students were at an unhealthy weight, and with every proceeding grade, that unhealthy range grew larger. We reported cumulative district wide and individual school group results to each school, parents and our community members. Every presentation sparked the desire to implement changes that would improve the health and wellness of every student. The District developed a plan of action, including making major revisions to our district wellness policy. Many schools started changing their own food policies related to birthday parties and celebrations. They also began looking for healthier ways to raise money instead of selling candy or other food items. Some schools created their own wellness committees and wellness guidelines, so when our new district wellness policy was adopted by the board of education, they were already ahead of the changes.

In 2012 we repeated our Height and Weight Surveillance Project with the optimism that some change may have occurred. What we discovered was that there was a 3.2% decrease in our obese or overweight range for all students, and a 3.2% gain in the normal range. Additionally, we saw a decline in the obese range at every grade level, especially at the sixth grade (5.1%). Furthermore, we saw significant changes in almost all of our schools on our District Obesity map with many schools dropping into lower weight categories.

And we are not finished. CVESD's goals for the 2013-14 school year include communicating, implementing and establishing a plan for monitoring district-level and individual school wellness compliance. Secondly, CVESD is currently implementing a Community Transformation Grant Physical Education/Physical Activity (PE/PA) Project; 19 schools will have the program over the next three years. The goal is to increase both the quantity and quality of PE/PA by increasing the level of moderate to vigorous physical activity (MVPA) during PE and increasing the opportunities to be active during the school day for all children. Thirdly, we plan on repeating the Height and Weight Surveillance Project in 2014 to measure and report our progress in slowing unhealthy weight in our students. And lastly, CVESD is committed to providing the healthiest learning environment for our students, families and our community because the quality of life for future generations depends on us.



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Section One

Introducing the Toolkit

Organization of the Toolkit

This toolkit is organized into sections that reflect an overall Surveillance Plan (also provided, see page 11).

Section One: Introducing the Toolkit

Describes the nature of the childhood obesity problem, risk factors, and basic prevention strategies including policy, systems and environmental changes that can help to address the problem. A BMI Surveillance Project is explained as a strategy for school districts to improve children's health and thereby overall life expectancy, aligning with the *Live Well San Diego* initiative.

Section Two: Plans, Protocols and Templates for Surveillance

Offers easy-to-use tools to help schools implement a BMI Surveillance Project, including an overall Surveillance Plan, information on how to identify champions and build a data collection team, protocols for conducting measurement activities as well as letters and notifications for principals, staff and parents.

Section Three: Project Scheduling

Includes guidance to keep the project on track and to facilitate coordination of measurement activities with school and teacher schedules.

Section Four: Reporting Results

Illustrates ways in which data can be captured effectively and in a manner that is easy to understand and provides a framework for future action.

Section Five: Resources

Includes background information and articles related to the creation of the Chula Vista Elementary School District's Body Mass Index Surveillance Toolkit.

Section Six: Appendices

Features relevant resources from the Centers for Disease Control and Prevention and the University of California, Berkeley Center for Weight & Health.

Visit LiveWellSD.org today for more information on tools, tips and resources.

Background

According to the Centers for Disease Control and Prevention (CDC), approximately 17% (or 12.5 million) of children and adolescents aged 2—19 years are obese in the United States. Since 1980, obesity prevalence among children and adolescents has almost tripled. In addition, the CDC reports that there are “significant racial and ethnic disparities in obesity prevalence among U.S. children and adolescents.”¹

So why is childhood obesity still a growing problem in the U.S.? And, what is being done to address this major health epidemic?

What is obesity?

Being overweight or obese is defined as having a body weight greater than what is considered healthy for one’s height, age and gender. It is determined differently in adults and children. For children, overweight means a Body Mass Index (BMI) greater than the 85th percentile but lower than the 95th percentile; and obese means their BMI is equal to, or greater than the 95th percentile.² The BMI percentile allows for comparison with children of the same age and gender. The percentile indicates the relative position of a child’s BMI compared to his or her peers. The BMI is calculated in percentile for children because the body fat composition varies by age and, also, by gender.³

What causes childhood obesity?

Childhood obesity is the result of consuming too many calories and not getting enough physical activity.⁴ Several risk factors predispose children or increase the likelihood of children becoming obese:

These risk factors include:

- Limited access to fresh food
- Limited opportunities for physical activity
- Poor nutrition/dietary habits
- Sedentary lifestyle
- Excessive TV and computer time
- Lack of education
- Socioeconomic status: poverty/low income
- Dysfunctional home life
- Genetics/family history

How can childhood obesity be prevented?

The reality is that every child wants to be healthy and feel safe; yet this may not be possible for children living in high poverty areas prone to violence and crime, unsafe parks and community spaces, and neighborhoods with few healthy food options. Most often, these same children and their families are faced with the dilemma of the “healthy food choice” or the “more for your money choice”, thereby increasing the risk for becoming obese or overweight (Anna Peeters, *The Conversation, Obesity and Inequality*, 2013).

So how can a different reality be created for children? By focusing on prevention strategies from a multi-sectoral approach.

1. Centers for Disease Control and Prevention, *Overweight and Obesity*. (January 11, 2013). Retrieved November 4, 2013, from <http://www.cdc.gov/obesity/data/childhood.html>

2. Centers for Disease Control and Prevention, *Overweight and Obesity*. (April 27, 2012). Retrieved November 4, 2013, from <http://www.cdc.gov/obesity/adult/defining.html>

3. Centers for Disease Control and Prevention, *Healthy Weight – it’s not a diet, it’s a lifestyle!*. (September 13, 2011). Retrieved November 11, 2013, from http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html#What%20is%20BMI%20percentile

“Basic” prevention strategies:

- Creating and maintaining safe neighborhoods and parks to encourage outdoor activity ^{4,5}
- Ensuring that schools and childcare centers serve healthy and appropriately portioned (serving size) food items
- Encouraging families to follow the 2010 Dietary Guidelines for Americans
- Limiting media time for kids to no more than two hours per day
- Making sure children get at least 60 minutes of physical activity each day

What can schools do to combat childhood obesity?

Schools should play a critical role in fighting childhood obesity by promoting healthy behaviors and providing safe, healthy learning environments for all students. Why schools? Children spend between 6-12 hours of their day at school. Every school has the opportunity to educate and positively influence the nutrition and physical activity environments of students and even families -through strong wellness policies and practices. Many school districts are implementing creative strategies to address childhood obesity.

Research tells us that healthy students are better learners. Healthy children attend school regularly, and have better focus and behavior in the classroom. Additionally, healthy students can serve as role models to others and can play an important part in identifying ways to create and sustain school environments that promote life-long health and wellness.

Why create a BMI Surveillance Toolkit?

The toolkit was created in response to the growing epidemic of childhood obesity in our communities. The goal is to provide a replicable model for gathering surveillance data in schools and/or school districts. The collected data can be used to identify age, grade, gender, individual school and district results. The information can then be translated into more strategic and focused planning, policy development and implementation district wide or school-by-school. The findings can identify schools with the greatest needs and help secure resources that could assist staff in creating healthier students and learning environments. The toolkit was created to provide schools with the necessary tools to implement a successful BMI surveillance project for one school, or for a school district. It is important to note that the toolkit is not intended to identify individual student results, but rather on a group aggregate level.

Why focus on policy, systems and environmental change to address childhood obesity?

There is a need for concerted efforts that will create policies, implement systems, and promote healthy built environment changes that support the creation and sustainability of healthy food options, safe parks and green spaces.

The need for, and implementation of, policies that promote wellness are a key factor in fighting childhood obesity. Policies could include: healthy vending policies, community gardens, crime-free housing, no-smoking in parks, lactation accommodation, and school wellness policies, each of which are pivotal in impacting this epidemic.

In 2006, schools were required by Congress to develop local School Wellness Policies that set standards for nutrition education, foods served and sold, physical activity and other requirements that support student wellness. We know that many policies have been underdeveloped and lack the necessary implementation and monitoring to result in positive change. Moreover, policies related to joint-use of school grounds as park space have met with resistance in many communities.

The good news is many school districts have been working diligently to change the culture of their school food policies and physical environments to provide healthy and safe places for students to thrive. One such example is Chula Vista Elementary School District. The District has made many significant changes to their wellness policy including non-food birthday celebrations, removing flavored milk from the menu, promoting healthy fundraising and supporting stronger language to ensure district wide implementation, monitoring and ongoing evaluation. Many of these policy and system changes have already positively impacted the health and wellness of the students and families that attend school in the Chula Vista Elementary School District.

4. Centers for Disease Control and Prevention, *Overweight and Obesity*. (April 17, 2013). Retrieved November 4, 2013, from <http://www.cdc.gov/obesity/childhood/problem.html>

5. Centers for Disease Control and Prevention, *CDC Features*. (September 23, 2013). Retrieved November 4, 2013, from <http://www.cdc.gov/features/PreventChildhoodObesity/index.html>

Why focus on policy, systems and environmental change to address childhood obesity? (cont.)

There are a variety of environmental factors that determine whether or not the healthy choice is the easy choice for children and their parents. According to the Centers for Disease Control and Prevention (CDC), American society has become characterized by environments that promote increased consumption of less healthy foods, and physical inactivity (CDC Overweight and Obesity, 2013). It can be difficult for children to make healthy food choices and get enough physical activity when they are exposed to environments in their home, child care center, school, or community that are influenced by the following factors:⁶

- Sugary drinks and less healthy foods on school campuses
- Advertising of less healthy foods
- Lack of daily, quality physical activity in all schools
- No safe and appealing place, in many communities, to play or be active
- Limited access to healthy affordable foods
- Greater availability of high-energy-dense foods and sugary drinks
- Increasing portion sizes
- Lack of breastfeeding support
- Television and media

6. Division of Nutrition, Physical Activity and Obesity, National Center for Chronic Disease Prevention and Health Promotion, *A Growing Problem*, <http://www.cdc.gov/obesity/childhood/problem.html>



What is *Live Well San Diego*?

In 2010, the County of San Diego Board of Supervisors adopted a comprehensive initiative called *Live Well San Diego*. This long-term plan to advance the health, safety and overall well-being of the San Diego region is being built with community involvement in three components: *Building Better Health*, *Living Safely*, and *Thriving*. Achieving the vision of health, safety and well-being for all residents requires more than County efforts. It requires the collective efforts of all levels of local government, businesses, community and faith-based organizations and schools.

Live Well San Diego encompasses community engagement on all levels. It starts with individuals and families who are leading efforts to be healthy and safe and grows through County-community partnerships to convene working groups, conduct program activities, and leverage each other's resources and capabilities to improve the health, safety and overall well-being of residents throughout San Diego County.

It takes organizations throughout the region to reach all 3.2 million people living in San Diego County. Chula Vista Elementary School District (CVESD) was the first school district to become a *Live Well San Diego* Recognized Partner in April 2013. CVESD was recognized for its comprehensive school wellness policies and its efforts to mentor and share best practices with other school districts, as this BMI Surveillance Project reflects.

Live Well San Diego is transformative not only because it involves the community, including partners across every sector, but also because it reflects four shared strategies across the initiative's three components. The initiative is advanced through these shared strategies: 1) enhance efforts to improve the delivery of services throughout the region; 2) support positive choices so that residents and communities can take action; 3) create environments and adopt policies that make it easier for everyone to live well; 4) and improve the culture within County government so that the workforce recognizes the importance of its role. The efforts of CVESD and the BMI Surveillance Project reflect these strategies, most notably supporting positive choices among school children and their parents, and advancing policy and environmental changes that make it easier for children and families to be healthy. (The triangle on the following page captures the vision, components and strategies of *Live Well San Diego*.)

How are we measuring progress?

First measurements of progress indicate that this collaborative approach is having a positive impact on the region. The County of San Diego has identified the *Live Well San Diego* Indicators as a shared measurement system that allow all partners to focus collective efforts and track collective progress. The *Live Well San Diego* Indicators are part of a framework known as "10 - 5 - 1": Ten Indicators that span five Areas of Influence (**Health, Knowledge, Standard of Living, Community, and Social**) that track progress toward one vision of a healthy, safe and thriving county.

The *Live Well San Diego* Top 10 Indicators were identified because they are easy to understand and because data are available to compare progress in San Diego County to other communities, the state and the nation. They were also selected because they capture well-being across the life span of an individual—from children to older adults.

CVESD's collaborative, multi-faceted approach to monitoring and tracking childhood obesity aligns the BMI Surveillance Project with the *Live Well San Diego* Indicators measurement framework. Research shows that nutrition and exercise impact life expectancy. 3-4-50, 3 behaviors contribute to 4 diseases that lead to over 50% of deaths countywide, was the guiding message behind *Live Well San Diego*'s original *Building Better Health* strategy. Obese children are at greater risk of developing cardiovascular disease, pre-diabetes, bone and joint problems and sleep apnea that can lead to social and psychological problems. Children who became obese at age 2 are more likely to be obese as adults and therefore at greater risk for adult health problems. Childhood obesity has a direct impact on **Health**; one of *Live Well San Diego*'s measured Areas of Influence.

Research also shows that good health contributes to success in school and that regular physical activity is associated with higher levels of academic performance. Chronic diseases such as diabetes and obesity lead to more absenteeism and lower school performance, according to the CDC. Adolescents with poor health are less likely to graduate from high school on time or attend college or post-secondary education. In these ways, childhood obesity also impacts **Knowledge**; another *Live Well San Diego* measured Area of Influence.

The partnership between CVESD and *Live Well San Diego* is evidence of the strength of a collective vision and collective action for healthier children and families. By working together and sharing best practices, school districts across San Diego County will continue to play a major role in helping children throughout the region live well, today and throughout their lifetimes.



LIVE WELL
 SAN DIEGO

Visit LiveWellSD.org to learn more

Living Safely, launched October 2012, focuses on three key outcomes:

- 1 Residents are protected from crime and abuse
- 2 Neighborhoods are safe to work, live and play
- 3 Communities are resilient to disasters and emergencies

1
VISION

of a Healthy, Safe and Thriving San Diego County

3
COMPONENTS

to be rolled out over the long-term initiative

Building Better Health	Living Safely	Thriving
------------------------	---------------	----------

4
STRATEGIES

that encompass a comprehensive approach

Building a Better Service Delivery System	Supporting Positive Choices	Pursuing Policy & Environmental Changes	Improving the Culture Within
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5
AREAS OF INFLUENCE

that capture overall well-being

HEALTH	KNOWLEDGE	STANDARD OF LIVING	COMMUNITY	SOCIAL
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TOP 10 LIVE WELL SAN DIEGO INDICATORS

Life Expectancy	Education	Unemployment Rate	Security	Vulnerable Populations
Quality of Life		Income	Physical Environment	
			Built Environment	Community Involvement

that measure progress in achieving the vision for healthy, safe and thriving communities

Purpose

This BMI Surveillance Toolkit is designed to provide school districts and individual schools with the necessary tools to implement and conduct successful BMI surveillance, and to identify other needed resources that could further assist in increasing the capacity of school officials, teachers, parents and community members to address childhood obesity.

This toolkit highlights the importance of not only the surveillance of BMI, but also how it can be instrumental in addressing obesity and being over-weight at the school level. It will provide relevant resources that school districts and individual schools can use to ensure their BMI surveillance project is not only effective, it provides accurate data collection and reporting.

The focus of the BMI Height and Weight Surveillance Project is to collect data that will help districts and schools plan for more effective learning environments that will encourage healthy eating and lifelong physical activity habits.

The information gathered from the surveillance project is intended as a “first look” at specific student group data, based on age or grade level, gender, school, and district overall measures. All heights and weights should be measured in a private setting and remain confidential.

Children’s names should not be listed in any report or linked to the information collected. The data should be collected, analyzed and reported back to schools. Information on ethnicity, socio-economic, and regional factors could also be compared and analyzed. Results will provide baseline data that could assist with future planning at the district, school and even community levels and provide a snapshot of students’ BMI patterns for a specific school year.

Many school districts throughout the state of California have expressed a need to gather relevant and reliable student data related to the health of their students. This toolkit provides practical, reliable and necessary resources for school districts and individual schools, as well as for any other entity wishing to do a surveillance project.



Section Two

Plans, Protocols and Templates for Surveillance

STEPS FOR A SUCCESSFUL SURVEILLANCE PLAN

Surveillance Plan

Start with a plan: Who? What? Why? When? How will you communicate and use this information you collect?

Data Collection Team

Who will be your champion —your team leader on the project? Who will organize, train and supervise the measurement team and keep staff up to date on progress and/or scheduling changes?

Measurement Protocol

Establishing a consistent measurement protocol is essential to the accuracy of the data being gathered, analyzed and reported.

Communication with Principals, Staff & Parents

Including key stakeholders in the initial planning and keeping them informed throughout the process is critical to the project's success. Additionally, it is important that parents are clear on how the information will be used and can exercise their right to "opt out."

Project Scheduling

Having a clear strategy on where, when, and who will be measured will keep the project on track —this means creating a pre-determined calendar early on so schools/teachers can adjust their schedules accordingly.

Results

Turning data into "user-friendly" information will make it easier to report findings to interested school and community members, as well as serve as a guide for strategic policy development and/or environmental changes.



TEMPLATE

SURVEILLANCE PLAN

(District Name)

PLAN

To measure all _____ through _____ grade students in the _____ schools for the _____ school year.
(grade) (grade) (district name) (year)

RATIONALE

1. Obtain more accurate demographic information/data about the health/growth of students throughout the span of their school career
2. BMI data could be compared with other information on ethnicity, socio-economic, gender, and regional factors you may already have in your district/state data systems. Currently, the only source for most schools related to BMI is from the 5th, 7th & 9th grade Physical Fitness Test (Fitnessgram) which happens too late in a student's school career for schools/districts to plan effectively.
3. Additionally, your School/District can pursue grant funding based on descriptive data to build and sustain your wellness policy work. Having reliable and descriptive data will help with the grant seeking process as well as targeting needed policy and system changes.

PURPOSE

This baseline data will help with future program planning and potential grants. It will also give you (and others) a better "snapshot" of the _____ community.
(city)

Ideally, height and weight would be taken every two years in all your schools as a standard procedure.

LOGISTICS

- Hire (number of employees) health clerks/clerks (from a sub list) to work in teams of two to go out to schools to measure and record data.
- Create/print out a recording form with student names/ID #'s by teachers/grade level (Height/Weight/age/gender would be used to generate BMI).
- Purchase (#) portable scale systems that would allow your teams to set-up and move equipment easily within and between schools. Additionally, the professional digital scale has a remote display (6 foot cord) that will allow for more privacy when taking and recording student weight.



TIMELINE

(Month/Year - Month/Year)

- District Administration Approval
- Acquire equipment and generate school recording forms
- Generate Permission Form
- Generate Protocol

(Month/Year - Month/Year)

- Communicate with School Staff – Principals and Teachers
- Schedule days/dates at schools
- Identify/train Measurement Teams

(Month/Year - Month/Year)

- 4 Measurement Teams assigned to 8 schools per week (2 days per school)
- Make-up days on Friday

(Month)

- (School Name) data entry and school-by-school entry check
- Print-out of district and school/by school information

(Month)

- Data analysis**
- Data reporting to District Staff and School Board and community

COST ANALYSIS

EQUIPMENT

- (4) Tanita Professional Digital Scales with Remote Display - \$303.05 per unit = \$1,212.20
 - (4) hard carry cases - \$73.37 = \$293.48
 - (4) Professional mounted Height Rod (we would mount on 1x6"x 6.5' boards) = \$267.96
- Approximately \$2,000

STAFF (8)

- Clerk II - \$(____)per hour x 7 hours per day x 6 weeks

Approximately \$15-\$16,000

Number of Schools Measured: 44 Schools

Number of Students Measured: Approximately 25,000 students

Total Estimated Project Cost: \$17-\$20,000

Actual Cost was approximately \$17,000 (Mar/2011)

**Data Analysis: To analyze large populations, the Health and Human Services Agency (HHS) Public Health Services recommends using SAS software. SAS is advanced analytics software that has the ability to perform statistical analysis on data collected. The costs of data analysis should be included in the project budget. An individual license for SAS is \$7,000-8,000. Contracting this part of the project to a local university research department or other resource might be a cost-effective solution. Additionally, staff time from a data analyst would be required, approximately 80 hours to interpret and report on the results



TIPS

Identifying Project Champion & Data Collection Team

The BMI Surveillance Toolkit is only the beginning in creating awareness, identifying school needs and implementing solutions in the fight against childhood obesity. A critical first step is identifying a “project champion” – who would serve as the main lead on this surveillance project. This leader will be key to the successful implementation of the project and will make the process of school-by-school data collection easier for school principals and teachers.

The first step for school districts should be identifying an individual(s) such as a coordinator, nurse, resource teacher, health or physical education teacher, or an outside consultant that would serve as the lead for the project. Using the toolkit, this individual would train and supervise the data collection team, and facilitate the data input and analysis process.

However, if your district has limited internal staff to manage and staff the project, a second option would be to identify individual(s) such as a consultant, nurse, public health or medical intern, or the hiring of temporary staff, to conduct or assist with parts of the surveillance project. For example, school districts may already have department/staff that analyze data, and can access their own internal expertise for the project. There are also several opportunities through university and technical schools for student interns that could assist with the data collection and use that time to fulfill some of their educational requirements. In addition, school districts within San Diego County may contact the County of San Diego Community Health Statistics Unit for guidance on programming, analyzing and reporting the data collected.

In addition to the staff resources required to weigh and measure students, the analysis of school BMI data requires either specialized staff support or contracted support for statistical analysis and reporting. BMI calculation for individuals under 18 years old is not simple. The calculation of the data is adjusted for age and gender against national norms. The CDC provides tools and instructions for generating normed BMI values for children and teens. CDC has developed an Excel-based calculator for schools or districts with fewer than 2,000 students which can be found at:

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/tool_for_schools.html.

For larger schools or districts, SAS programs and instructions for the structure of data files can be found at the following link: <http://www.cdc.gov/nccdphp/dnpao/growthcharts/resources/sas.htm>.

Key ingredients to your Surveillance Project’s success will be support from District or school leadership, and finding your “champion”, who would facilitate the creation of a measurement team, manage and report data, and most importantly communicate with district staff, parents and community members your results and “next steps”.



TEMPLATE

HEIGHT & WEIGHT - MEASUREMENT PROTOCOL

(District Name)

PLAN

To measure the height and weight of all _____ through _____ grade students in the _____ schools. The data will be collected and used for surveillance purposes.
(grade) (grade) (district name)

RATIONALE

- The data will be compared/contrasted with other information in the district/state data systems. Information on ethnicity, socio-economic factors, gender, and regional factors (demographics) will also be analyzed.
- This baseline data will assist with future program planning at the district and school levels and will provide a snapshot of students' growth patterns for the (year) school year.

LOGISTICS

- We have purchased (*number of scales*) portable scale systems (example- Tanita Professional Digital Scales with Remote Display) that will allow teams to set-up and move equipment easily within and between schools. Additionally, the professional digital scale has a remote display (6 foot cord) that will also allow for privacy when taking and recording student weight (omit if not using this type of scale).
- The Project will hire (*number of employees*) to work in teams of two to go out to schools to measure and record data. They will also be used to input data into the district's (*computer/data program*) system (omit if not hiring employees).
- Informational Technology staff will create a recording form with student names/ID numbers by class (grade) and height/weight columns to use at each school.
- A "passive" parental notification form has already been drafted, approved and sent out to all parents. Schools will collect returned forms indicating parent's wish that child NOT be measured.
- Scheduling of schools will begin the week of (*week*) through the end of (*week*).



TEMPLATE

HEIGHT & WEIGHT - MEASUREMENT PROTOCOL

 (District Name)

TECHNIQUES FOR HEIGHT & WEIGHT

FOR WEIGHT

The Appropriate Setting

- The best case scenario should be that each student be weighed and measured in private. Depending on space/location issues at each school, using portable screens and/or creating a distance between waiting students and those who are being measured is acceptable.
- At no time should the student (or others) be able to see the digital scale read-out, the screen will be positioned six feet from the scale. When measuring height, students should face away from the stadiometer.
- Project Clerk(s) will record the measurements. At no time should measurement information be given out to school staff and/or parents or said outloud.

Comments to Children

- Do not comment on the student's height or weight at any time, even if the student asks you for their measurements. Suggest that they do their own measurements at home or doctor's office.
- If a student makes a negative comment about his/her body or someone else's, it is appropriate to say, "People come in all shapes and sizes and change as they grow and mature. What are your specific concerns?"
- Teachers and other school staff should also discourage teasing by others, and model respectful behavior. Remind students to respect the feelings of others.

Procedure for Measuring Weight

1. Before starting, ask the student to remove shoes and/or bulky clothing such as coats and sweaters.
2. Make sure the scale is in the "zero" position.
3. Ask the student to stand without moving, feet in the center of the scale.
4. Record the measurement highlighted on the digital monitor.
5. Have the student step off the scale.

 Adapted from "Weighing the risks and benefits of BMI reporting in the school setting" Pat Crawford, Gail Woodward-Lopez and Joanne Ikeda, Center for Weight and Health University of California, Berkeley and Pictures from CDC Website



HEIGHT & WEIGHT - MEASUREMENT PROTOCOL

(District Name)

TECHNIQUES FOR HEIGHT & WEIGHT

FOR HEIGHT

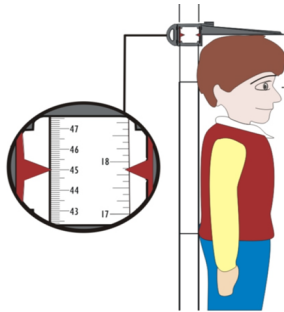
1. Before Measuring the Student

- Before taking measurements, ask students to remove shoes, hat, hairbands, clips and bulky clothing such as coats and sweaters that might get in the way of the measuring equipment.

2. Instructions for the Student's Stance

- Direct the student to stand erect with shoulders level, hands at sides, legs together, standing equally on both feet. Feet should be flat on the floor, with heels comfortably together and touching the base of the measurement tool or wall. Make sure the student is not rocking or standing on tip-toes.
- Check for body and stadiometer contact points: head, upper back, bottom and heels.

3. Instructions for Student's Head Position:



- Ask the student to adjust his or her head by moving their chin up or down in order to align chin perpendicular to the height bar and looking forward.
- The person taking the measurement can view and align the head more accurately from the side and at the eye level of the student.

NOTE: Sometimes even when the chin is correctly positioned, the back of the head may not make contact with the bar. Additionally, some students will only have two body parts touching the bar.

4. Taking the Measurement:

- Move the headpiece until it firmly touches the crown of the head and is at a right angle with the measurement bar.
- Check contact points and look to see if the heels are flat on the ground.

5. Recording the Measurement:

- Record height to the nearest 1/2 inch.
- See Measurement Guidelines for additional information/clarification.

Adapted from "Weighing the risks and benefits of BMI reporting in the school setting" Pat Crawford, Gail Woodward-Lopez and Joanne Ikeda, Center for Weight and Health University of California, Berkeley and Pictures from CDC Website



HEIGHT & WEIGHT - MEASUREMENT PROTOCOL

(District Name)

IMPORTANT TIPS FOR HEIGHT & WEIGHT

HEIGHT MEASUREMENTS

- Measures will be reported in whole or half inch increments. See protocol for instructions on how to measure. Make sure the students' back is to the bar and watch out for head-bands (scrunch high-hair). For example if a student is:
 - o 48" – that is how it is recorded,
 - o If he or she is between 48 and $\frac{1}{4}$ in- report as 48",
 - o If he or she is above 48 $\frac{1}{4}$ report as 48.5"
 - o If he or she is between 48.5" and $\frac{3}{4}$ " record as 48.5"
 - o And, if he or she is between 48 $\frac{3}{4}$ " and 49, record as 49".

WEIGHT MEASUREMENTS

- Make sure the scale is on pounds (lbs).
- Make sure the scale has batteries or that it is plugged in.
- Have students stand on scale without shoes and/or heavy jacket - wait for digital read-out to stop – record weight.

RECORDING MEASUREMENTS

- MAKE SURE YOU ARE RECORDING NUMBERS IN CORRECT COLUMN!
- Use pencil in case you need to erase



HEIGHT & WEIGHT - MEASUREMENT PROTOCOL

(District Name)

MEASUREMENT TEAM GUIDELINES & CONTACT INFORMATION

1. PRIVACY AND CONFIDENTIALITY

- We have promised parents/guardians complete confidentiality of their child's H&W information. This means we are sharing it with NO ONE – not the school nurse, not student, teachers, principals, parents, volunteers, - NO ONE! (and they will ask) if you have a problem - just have them contact _____.
- Do not at any time comment or discuss a student's measurement information. Your job is to take measurements for data analysis.

2. PROFESSIONAL BEHAVIOR

- You will be working in many different schools, with many different staff, students, and even parents – please know that you must be mindful at all times that how you conduct yourself will be monitored and observed. If there is an issue, I will hear about it; if you have any issues/problems – please contact immediately.
- You are required to sign-in/out in the office at each school. Please make sure you plan time to do this upon arriving and departing each school day. On the first day at a school, please find out from the school secretary where you will be setting up - make sure the measurement equipment is in that location.
- Please make sure you are on time! It takes two people to measure effectively and teachers are time sensitive.

3. MEASUREMENT TEAMS

- There may be days in the first few weeks where teams will be finishing early - make sure if a school's measurements have been completed, that you call _____ AND OTHER TEAM MEMBERS so that they do not come to the school to work.

4. ORGANIZING MEASUREMENTS AT SCHOOL SITES

- A Parent volunteer will hopefully be provided to run and get classes as you finish measurements.....OR teachers have been assigned a time – if they are late, go to the office and have the secretary call for them – if they are really late, have them schedule another time to come back so that the next class is not short-changed.
- You may have some down time due to recess or other events – let me know if they are more than 30 minutes.
- You will be in various locations at schools – i.e. empty classrooms, stage, auditorium, etc. Make sure you have space to organize and instruct classes and a place away from large group to measure individual students. Classroom teachers should assist you with classroom behavior and identifying names of students to call out.
- If a student's name is crossed out on your class list it means that they are "OPTED OUT" and will not be measured. Ask teachers if they have any concerns about any other student, so that we can make sure parents have been informed. If teacher is unsure, and thinks it could be a problem-don't measure. If a student seriously doesn't want to be measured for some reason, don't measure (we aren't asking them, this only applies to students that are really reluctant - or if they don't want to take off their shoes-make a note that they had shoes on...). NOTE: Please reassure younger children like preschoolers that you are not a doctor, and "no shots" will be given – some think this is like going to the doctor...
- You and your team member need to work out a system for who measures height, and who measures weight. The person measuring weight is also recording measurements – so be close enough to share height discreetly.

*****DO NOT SHARE MEASUREMENTS WITH STUDENTS!**



TEMPLATE

HEIGHT & WEIGHT - LETTER TO PRINCIPALS

(District Name)

(District Department)

(year) Height & Weight Surveillance Project
(grade) through (grade)

Dear Principals,

Beginning *(date)* through *(date)* we will be conducting the *(District Name)* Height & Weight Surveillance Project. We have contracted with *(agency name)* for staff members to work as two-member teams to take student measurements (omit if no contracting agency). Please refer to the attached district height and weight schedule to see the dates we are coming to your school. You should be receiving the *(district name)* Notification (opt-out) Forms to send home with all students by *(date)*. *(individual's name)* will be coordinating the Project, and *(individual's name)* will serve as the Team Lead as part of *(agency name)*. Please note that we are scheduled to be at your school for two days and we are using *(date)* for any missed classes.

What we need Principals to do:

- Please designate an on-site **contact person** for Height and Weight Team (secretary, health clerk).
- Principal and/or Designee will need to complete Scheduling Template for **ONE/BOTH DAYS** (template attached) **BEFORE** scheduled measurement date (including PRESCHOOL & TK). I have attached a template – please list teachers/classrooms in the ORDER they should be contacted. We would like a *parent volunteer* to work with our team to retrieve classes one after the other so that we can finish measuring grade levels quickly!
- Our Project Lead will be coming by a few days before your scheduled measurement date to pick-up any Parent Notification forms (opt-outs) and talk with the contact person about any concerns. We want to make sure that no child is measured that returned a form (please collect from teachers one week before scheduled time).
- Assistance with **measurement location** (e.g. center workroom building pod, screened area in multi-purpose room or library). We want to have as much privacy as possible.
- Week before scheduled collection, parent reminder on school messenger [optional].
- PATIENCE; we learned a lot from our _____ Project -we hope to make this as easy and non-invasive as possible for everyone!

Attachments:

- 1) District Height and Weight School Schedule
- 2) Staff Letter
- 3) Scheduling template

If you have any questions or concerns, please contact _____
Phone # _____



TEMPLATE

HEIGHT & WEIGHT - LETTER TO STAFF

(District Name/Agency)

(Address/Phone Number)

(District Department)

(year) Height & Weight Surveillance Project
(grade) through (grade)

Date:
Dear School Staff;

The focus of the Height & Weight Surveillance Project is to collect data that will help the District plan for more effective learning environments that encourage healthy eating and life-long physical activity habits.

Beginning in (month/year), the District will begin collecting height and weight data in all schools, grades (grades). The data will be part of a surveillance project intended to get a "first look" at grade-level results based on age, gender, school, and district measures. All heights & weights will be measured in a confidential setting and remain confidential. Children's names will not be listed in any report or linked to the information collected. The data (school, grade, gender, etc) will be collected, analyzed and reported back to schools in the Spring.

Additionally, your student's who returned the "Opt Out" Notification Form will not be measured (We will have class lists with students' names crossed out). If for some reason you suspect a student should/could be an "opt out" and they are not crossed out, please notify the Measurement Team (before the measurement is taken) so they can double check with the parent.

Your principal will notify school staff on the dates our Measurement Team will be at your school. He/She will have a class schedule with the time/location your class will need to schedule. The location where measurements will be taken will be made based on access and privacy concerns.

We will make the interruption to your class time as minimal as possible. If you have any questions or concerns regarding the project objectives or Measurement Team, please contact:

Thank you for your assistance.

Respectfully,

TEACHER _____
SCHEDULED DATE/TIME _____



TEMPLATE

PARENT NOTIFICATION & OPT OUT FORM

(District Name)

(Address/Phone Number)

(District Department)

Height & Weight Surveillance Project
(grade) through (grade)

PARENTAL NOTIFICATION

As you may know, children's health is at greater risk because of childhood obesity, poor nutrition and lack of physical activity. The (district name) School District knows how important good health is to learning. The focus of this Height & Weight Surveillance Project is to collect data that will help the District plan for more effective learning environments that encourage healthy eating and life-long physical activity habits.

(District name) will begin collecting height & weight data in all schools (including preschool) beginning (date). The data will be part of a biennial surveillance project intended to get a "first look" at grade-level results based on age, gender, school, and district measures. The District will be comparing results with the (year) measures and sharing our progress with schools, parent groups and other community agencies in (city).

All heights and weights will be measured in a confidential setting and remain confidential (information will not be given to individual student and/or to school staff). Your child's height and weight will be added to the measurements we collect for all students. The name of your child will not be in any report or linked to the information that is collected. District and school profiles will be created and reported to the Board of Education and each school community. Additionally, we anticipate sharing our data with the County of San Diego Immunization and BMI Registry to help us track age/grade/gender trends throughout our region.

Body Mass Index (BMI) is a number calculated from a child's weight and height. For children and teens, BMI is age-and gender-specific and is often referred to as BMI-for-age. BMI is a reliable indicator of body fatness for most children and teens. For more information on BMI, go to <http://www.cvesd.org/COMMUNITY/Pages/Wellness.aspx> click on the Nutrition Education icon, scroll down to Other Resources, click on "About BMI for Children and Teens" under Centers for Disease Control (CDC), scroll down to access the new growth charts (or go directly to http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html and scroll down to charts).

If you do NOT want your child weighed and measured, please complete and sign the form below and send it back to school with your child by _____.

I do not want my child, _____, to be measured.

ONLY IF YOU **DO NOT** WANT YOUR CHILD MEASURED, RETURN THIS SECTION TO SCHOOL

School _____ Teacher/Grade _____

Parent/Guardian Signature _____ Date _____

BOARD OF EDUCATION
(Member Names)

SUPERINTENDENT
(Name)





Section Three

Project Scheduling

TEMPLATE

School Name:

(District name) (year) Height/Weight Project
 Classroom Schedule

Start Time	Day One - Teacher & Room #	Day Two - Teacher & Room #	Comments
8:00-8:15			
8:15-8:30			
8:30-8:45			
8:45-9:00			
9:00-9:15			
9:15-9:30			
9:30-9:45			
9:45-10:00			
10:00-10:15			
10:15-10:30			
10:30-10:45			
10:45-11:00			
11:00-11:15			
11:15-11:30			
11:30-11:45	Lunch Break	Lunch Break	
11:45-12:00			
12:00-12:15			
12:15-12:30			
12:30-12:45			
12:45-1:00			
1:00-1:15			
1:15-1:30			
1:30-1:45			
1:45-2:00			
2:00-2:15			
2:15-2:30			

*Please enter class/grade level into time slots



Section Four

Reporting Results

Examples of Data Reports

Once the measurement data is collected and analyzed, there are many different ways that schools can share this data with school boards, principals, teachers, parents, media outlets or broadly within the community.

The methods in which this data is shared becomes key when attempting to emphasize the implications of the data, and should be presented in multi-faceted ways that will be appropriate for all targeted audiences.

The following pages reflect a few examples of how data can be shared with school officials, parents, community members, agency partners, media stations, etc.

Example 1 (District Results Table and Pie Chart) - Page 30

Weight Status Based on BMI for Age, Chula Vista Elementary School District 2012

Example 2 (Obesity Map) - Page 31

Map of schools in Chula Vista Elementary School District showing obesity rates for grades K-6th in 2010 and 2012

Example 3 (Gender Comparison Bar Graph) - Page 32

Height and weight comparisons for gender in 2010 and 2012

Example 4 (Height and Weight Table by Grade) - Page 33

Height and weight comparisons by grade levels for 2010 and 2012

Example 5 (Unhealthy Weight Table by Grade) - Page 34

Height and weight comparisons by grade levels for 2012 (unhealthy weight combined)

Weight Status Based on BMI for Age
 Chula Vista Elementary School District, 2012

Chula Vista Elementary School District, 2012 – All schools

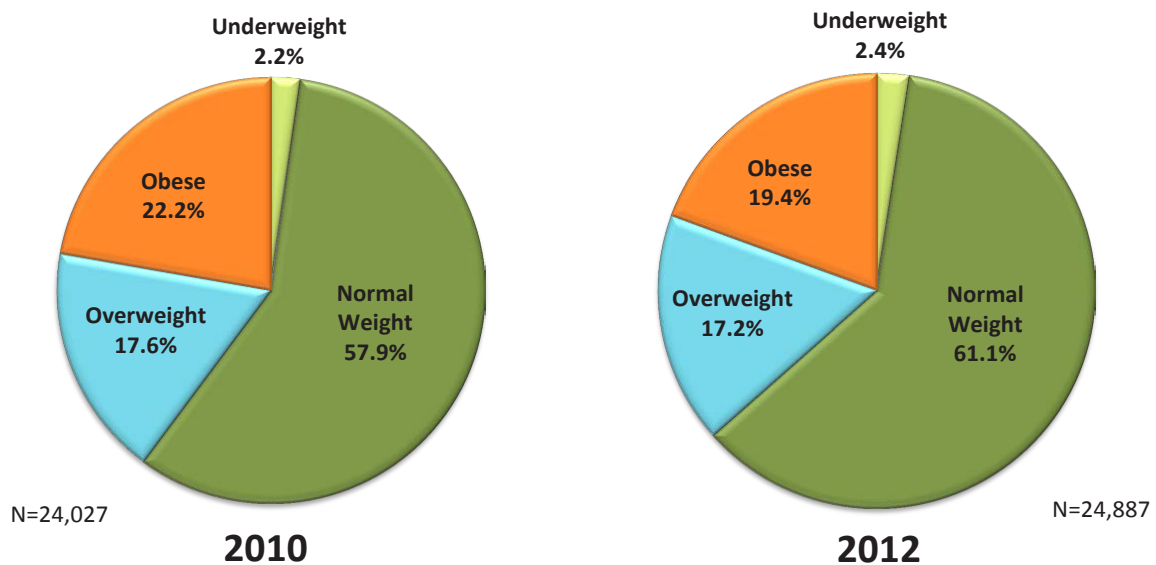
Table: Percent of students in each weight category by grade, 2012 (Total = 24,887)*

Grade	BMI Category				Total**
	Underweight	Normal Weight	Overweight	Obese	
Kindergarten	3.7%	67.4%	15.8%	13.1%	100.0%
First	2.8%	67.5%	15.0%	14.6%	100.0%
Second	2.2%	64.6%	15.1%	18.1%	100.0%
Third	1.8%	59.9%	16.4%	21.9%	100.0%
Fourth	2.1%	56.9%	18.3%	22.8%	100.0%
Fifth	2.3%	55.7%	19.8%	22.2%	100.0%
Sixth	2.1%	56.0%	19.5%	22.4%	100.0%
Total	2.4%	61.1%	17.2%	19.4%	100.0%

* All weight categories are mutually exclusive.
 **Totals may not sum exactly to 100 due to rounding.

Figure: Percent of students in each weight category, all grades (N = 24,887)**

**Chula Vista Elementary School District
 Body Mass Index (BMI) Project
 Kindergarten through Sixth Grade**



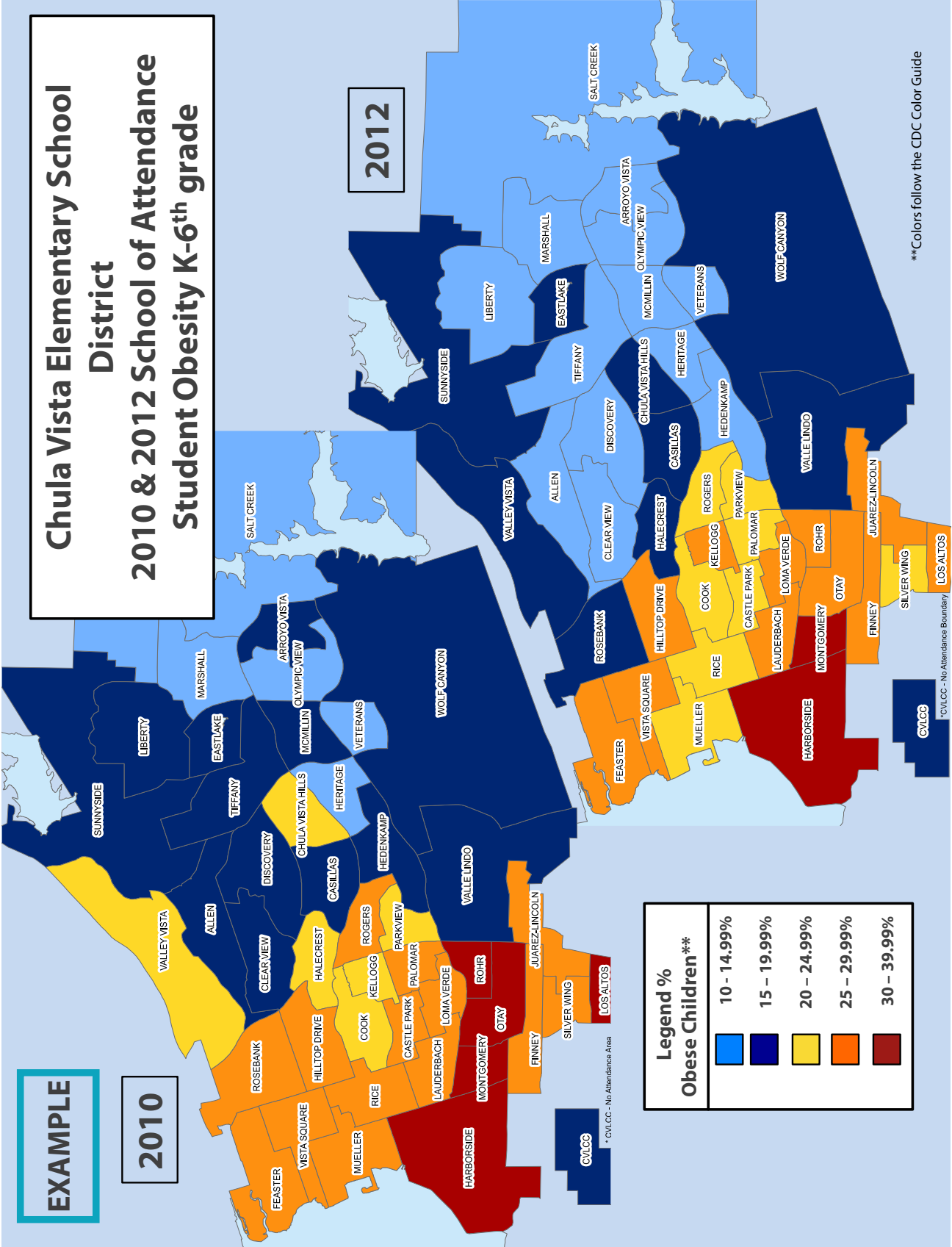
Percent of students in each weight category

Changes

The # of students in the Normal range *increased* by 3.2%

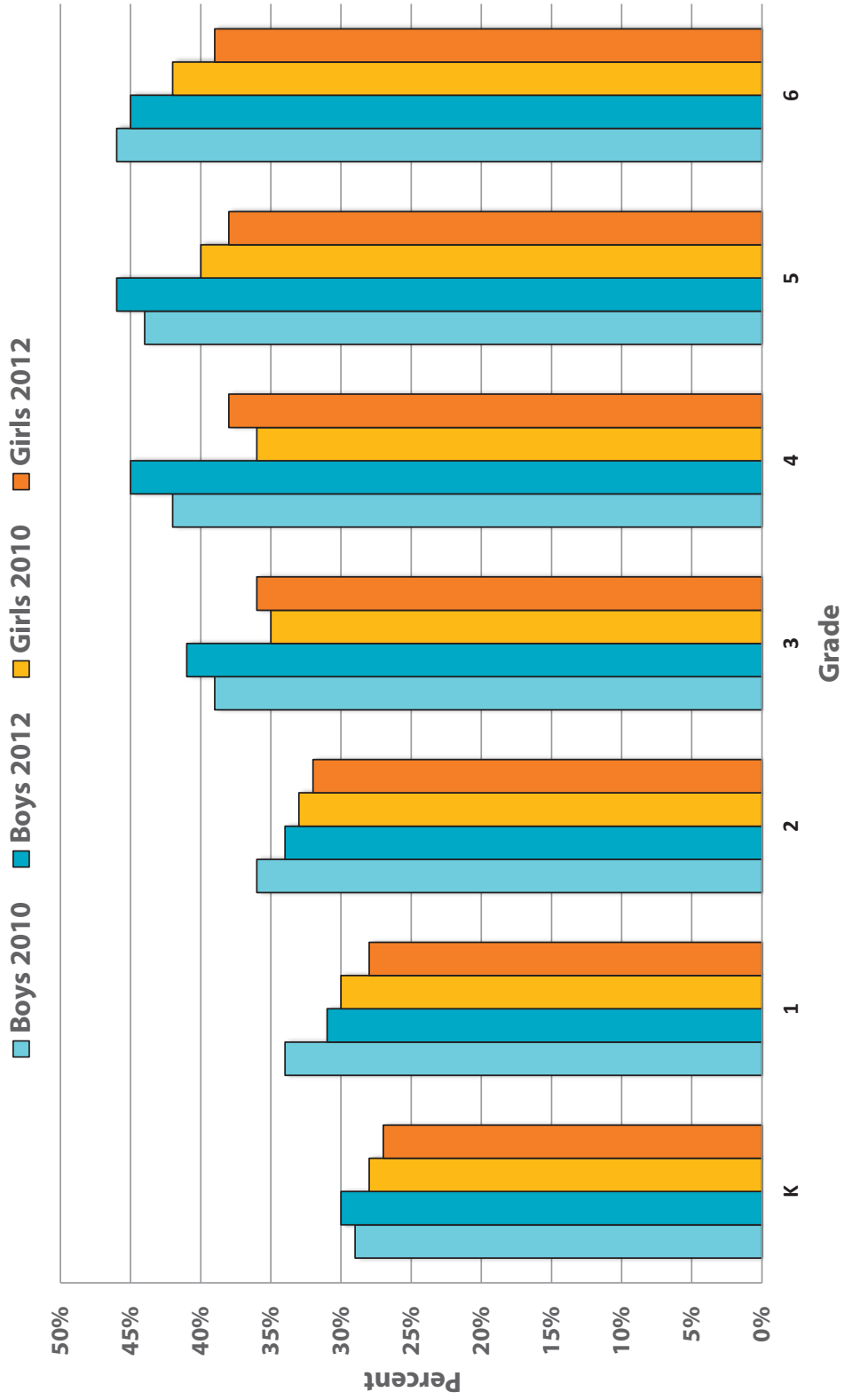
The # of students in the Obese/Overweight range *decreased* by 3.2%

Source: Chula Vista Elementary School District, 2010 and 2012; Compiled by: County of San Diego, Health and Human Services Agency, Public Health Services, Community Health Statistics Unit.



EXAMPLE

CVESD Overweight/Obese Children by Gender 2010 & 2012 Boys and Girls



EXAMPLE

**Chula Vista Elementary School District
2010 & 2012 BMI RESULTS – ALL SCHOOLS**

Table: Percent of students in each weight category by grade, 2010 (Total = 24,027)

Table: Percent of students in each weight category by grade, 2012 (Total = 24,887)

Grade & Year	BMI CATEGORY					Over/Obese Difference
	Underweight	Normal Weight	Overweight	Obese	Over/Obese	
Kindergarten 2010	3.6%	66.6%	14.3%	15.4%		
2012	3.7%	67.4%	15.8%	13.1%		-0.8%
First 2010	3.2%	62.1%	16.2%	18.4%		
2012	2.8%	67.5%	15.0%	14.6%		-5%
Second 2010	2.2%	60.0%	16.4%	21.3%		
2012	2.2%	64.6%	15.1%	18.1%		-4.5%
Third 2010	1.7%	57.5%	17.5%	23.2%		
2012	1.8%	59.9%	16.4%	21.9%		-2.4%
Fourth 2010	1.6%	56.2%	17.6%	24.6%		
2012	2.1%	56.9%	18.3%	22.8%		-1.1%
Fifth 2010	1.7%	53.2%	20.0%	25.2%		
2012	2.3%	55.7%	19.8%	22.2%		-3.2%
Sixth 2010	1.6%	51.5%	20.8%	26.2%		
2012	2.1%	56.0%	19.5%	22.4%		-5.1%
Total 2010	2.2%	57.9%	17.6%	22.2%		
2012	2.4%	61.1%	17.2%	19.4%		
Difference	+0.2%	+3.2%	-0.4%	-2.8%		-3.2%

EXAMPLE

Chula Vista Elementary School District
(24, 887 students measured, 2012 year)

GRADE	% OVERWEIGHT	% OBESE	TOTAL % OF OVERWEIGHT & OBESE ("UNHEALTHY WEIGHT")
K	15.8%	13.1%	28.9%
1	15.0%	14.6%	29.6%
2	15.1%	18.1%	33.2%
3	16.4%	21.9%	38.3%
4	18.3%	22.8%	41.1%
5	19.8%	22.2%	42.0%
6	19.5%	22.4%	41.9%





Section Five

Resources

RESOURCES

RESOURCE NAME	WEBSITE
CHULA VISTA ELEMENTARY SCHOOL DISTRICT	http://www.cvesd.org/Pages/home.aspx
COUNTY OF SAN DIEGO HHS LIVE WELL SAN DIEGO	http://www.livewellsd.org
CHULA VISTA SCHOOL EDUCATES FAMILIES TO COMBAT CHILDHOOD OBESITY	http://www.kpbs.org/news/2012/jul/02/fighting-childhood-obesity-means-making-healthy-c/
CHULA VISTA SCHOOLS PLAN TO COMBAT OBESITY	http://www.kpbs.org/news/2011/jul/15/chula-vista-schools-plan-combat-obesity/
CHULA VISTA SCHOOLS REVAMP FOOD EVENTS UNDER NEW WELLNESS POLICY	http://www.kpbs.org/news/2012/nov/06/chula-vista-schools-revamp-food-events-under-new-w/
WORK TO REDUCE CHULA VISTA STUDENTS' OBESITY IS PAYING OFF	http://www.kpbs.org/news/2013/mar/15/fewer-chula-vista-students-overweight-obese/
WELLNESS POLICY BEST PRACTICES AND DATA SCREENING	http://www.livewellsd.org

Many thanks to our Chula Vista Elementary School District resource **Sharon Hillidge**. Sharon has been teaching, mentoring and consulting for over 35 years. She holds a Master's degree in Physical Education and a teaching credential and Adapted PE emphasis credential from San Diego State University. She currently serves the Chula Vista Elementary School District as a Resource Teacher, Wellness Chair, and Height & Weight Surveillance Project Lead. She helped create the District's Exercise the Dream program at the Olympic Training Center where she taught for 18 years. Most recently, she has taken on the responsibility of Project Lead for CVESD with the County of San Diego Health & Human Services Agency Community Transformation Grant implementing quality physical education and activity programs over the next 3 years in 19 district schools.

Over the past 35 years she has developed and published various physical education curriculum- Project Team, and most recently Building Better Bodies; she has worked with thousands of children and trained thousands of teachers. Sharon has written and collaborated on many grants like Healthy Eating, Active Communities (California Endowment), and the Communities Putting Prevention to Work (HHS/County Office of Education). Currently she is a member of Live Well San Diego South Region Leadership Team and the San Diego Healthy Weight Collaborative, part of the National Healthy Weight Collaborative (NICHQ Project). She has given numerous presentations at local, state and national conferences and events.

Section Six

Appendices



Body Mass Index Measurement in Schools

$$\text{BMI} = \frac{\text{weight(kg)}}{\{\text{height(m)}\}^2}$$

BMI

Executive Summary



CENTERS FOR DISEASE CONTROL AND PREVENTION





Journal citation of full article:

Nihiser AJ, Lee SM, Wechsler H, McKenna M, Odom E, Reinold C, Thompson D, Grummer-Strawn L. Body mass index measurement in schools. *J Sch Health*. 2007;77:651-671.

To access full journal article and executive summary, please visit CDC's website:
www.cdc.gov/HealthyYouth/Overweight/BMI

For more information on the role of schools in preventing childhood obesity, please visit CDC's website:
www.cdc.gov/HealthyYouth/KeyStrategies

As the United States continues to search for answers to the growing problem of obesity among children and adolescents, much attention has focused on body mass index (BMI) measurement programs in schools. The BMI is the ratio of weight to height squared. It is often used to assess weight status because it is relatively easy to measure and it correlates with body fat.⁵⁻⁹

In 2005, the Institute of Medicine called on the federal government to develop guidance for BMI measurement programs in schools.¹⁰ With guidance from an expert panel, the Centers for Disease Control and Prevention (CDC) developed a report to help inform decision-making on school-based BMI measurement programs. This Executive Summary presents an overview of the report, which was published in the December 2007 issue of the *Journal of School Health*. The report describes the purposes of BMI measurement programs, examines current practices, reviews existing research, summarizes the recommendations of experts, identifies concerns about school-based programs, and provides guidance on BMI measurement programs, including a list of safeguards and ideas for future research.

BMI measurement programs in schools may be conducted for surveillance and screening purposes. BMI surveillance programs assess the weight status of a specific population (e.g., students in an individual school, school district, or state) to identify the percentage of students who are potentially at risk for weight-related health problems. Surveillance data are typically anonymous and can be used for many purposes, including identifying population trends and monitoring the outcomes of interventions. BMI screening programs assess the weight status of individual students to identify those at risk and provide parents with information to help them take appropriate action.

Some states have initiated BMI measurement programs in recent years. Arkansas, for example, implemented a statewide BMI screening and surveillance program in 2003 (State of Arkansas, 84th General Assembly, Regular Session, Act 1220 of 2003, HB 1583, 2003). In California, students participate in physical fitness testing that assesses BMI along with other fitness-related variables.¹¹

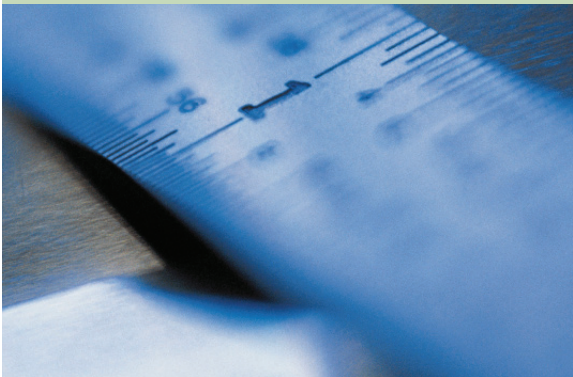
From 1980 to 2004,
the percentage of
youth who were obese*
tripled from 7% to
19% in children
(6-11 years) and 5% to
17% in adolescents
(12-19 years)¹⁻⁴

* These youth were classified as "overweight" in the articles cited; the classification was changed to "obesity" to reflect the June 2007 recommendations from the Expert Committee on the Assessment, Prevention, and Treatment of Child and Adolescent Overweight and Obesity.



BMI

Little is known about the outcomes of BMI measurement programs, including effects on weight-related knowledge, attitudes, and behaviors of youth and their families.



Little is known about the outcomes of BMI measurement programs, including effects on weight-related knowledge, attitudes, and behaviors of youth and their families. As a result, no consensus exists on the utility of BMI screening programs for young people. The U.S. Preventive Services Task Force concluded that insufficient evidence exists to recommend for or against BMI screening programs for youth in clinical settings as a means to prevent adverse health outcomes;¹² however, the American Academy of Pediatrics (AAP) recommends that BMI should be calculated and plotted annually on all youth as part of normal health supervision within the child's medical home.^{13,14} The Institute of Medicine recommends annual school-based screening.¹⁰

BMI screening meets some of the criteria established by the AAP for determining whether school-based screening should be implemented for any pediatric health condition:¹⁵ obesity is an important and highly prevalent condition;^{3,4} BMI is an acceptable measure;^{6,8} and schools are a logical measurement site because they reach virtually all youth.¹⁶ However, BMI screening programs typically do not meet other AAP criteria: effective treatments for obesity are not available,^{9,17,18} research has not established the effectiveness and cost-effectiveness of BMI screening programs, and communities typically do not have resources in place to help at-risk individuals access treatment services.¹⁰ More evaluation is needed to determine whether BMI screening programs are a promising approach for addressing obesity among children and adolescents.

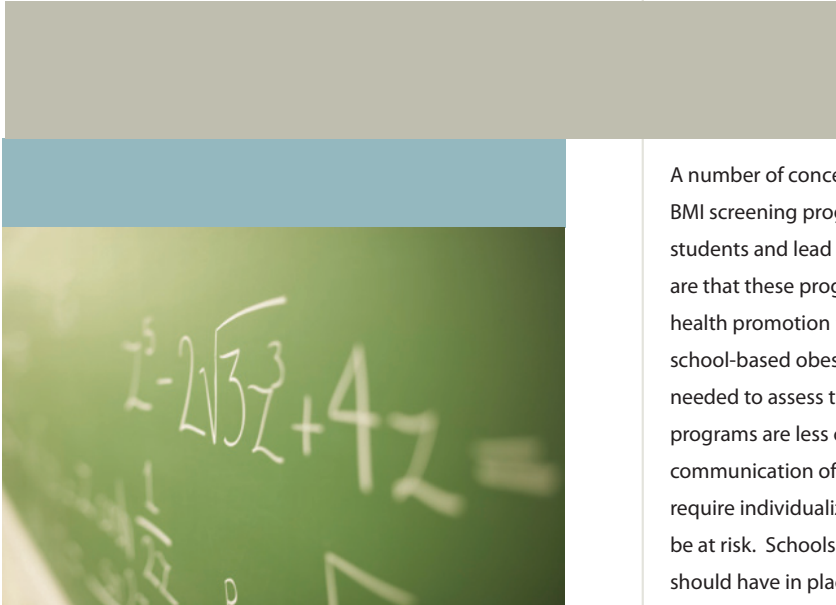


BMI

American Academy of Pediatrics Criteria¹⁵

Criteria for a Successful Screening Program in Schools

Disease	Undetected cases must be common or new cases must occur frequently and the disease must be associated with adverse consequences.
Treatment	Effective treatment must be available and early intervention must be beneficial.
Screening Test	The test should be sensitive, specific, and reliable.
Screeener	The screener must be well trained.
Target Population	Screening should focus on groups with high prevalence of the condition/disease in question or in which early intervention will be most beneficial.
Referral & Treatment	Those with a positive screening test must receive a more definitive evaluation and, if indicated, appropriate treatment.
Cost / Benefit	The benefit should outweigh the expenses (i.e., costs of conducting the screening and any physical or psychosocial effects on the individual being screened).
Site	The site should be appropriate for conducting the screening and communicating the results.
Program Maintenance	The program should be reviewed for its value and effectiveness.



A number of concerns have been expressed about school-based BMI screening programs, including that they might stigmatize students and lead to harmful behaviors.^{17,19-24} Other concerns are that these programs might be ineffective, waste scarce health promotion resources, and distract attention from other school-based obesity prevention activities.²⁵ More research is needed to assess the validity of these concerns. BMI surveillance programs are less controversial, because they do not involve the communication of sensitive information to parents and do not require individualized follow-up care for students identified to be at risk. Schools that initiate BMI measurement programs should have in place a safe and supportive environment for students of all body sizes and a comprehensive set of science-based strategies to promote physical activity and healthy eating. In addition, BMI screening programs should ensure that parents receive a clear and respectful explanation of the BMI results and appropriate follow-up actions; and that resources are available for safe and effective follow-up.

To reduce the risk of harming students, BMI measurement programs should adhere to the following safeguards:^{19,26}

- (1) introduce the program to school staff and community members and obtain parental consent,
- (2) train staff in administering the program (ideally, implementation will be led by a highly qualified staff member, such as the school nurse),
- (3) establish safeguards to protect student privacy,
- (4) obtain and use accurate equipment,
- (5) accurately calculate and interpret the data,
- (6) develop efficient data collection procedures,
- (7) avoid using BMI results to evaluate student or teacher performance, and
- (8) regularly evaluate the program and its intended outcomes and unintended consequences.



BMI

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Weighing the risks and benefits of BMI reporting in the school setting

linking researchers and the community to solve weight, health and hunger related problems

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Introduction

The prevalence of overweight among children and adolescents has risen dramatically in recent decades. Ironically, in the past, when rates of overweight were low, schools commonly measured the heights and weights of students. Today the practice is less common.

Many school districts are currently considering

- whether to reinstitute or increase the collection of height and weight measurements and
- whether to send this information to parents.

To reach an informed decision on *whether* to gather data, school authorities must consider not only the logistics of data collection and the additional expense in a time of restricted budgets, but also the ways in which the information gathered may be used. Weighing and measuring children is a large undertaking; the benefits must outweigh the costs. (Accurate techniques for *how* to measure heights and weights of children will be described below in Appendix A.)

Deciding Whether to Measure Weight and Height in the School Setting

To begin, schools must define their objectives:

- 1.) Are student weight and height measurements being collected for analysis and comparison with measurements from past eras and other locales (e.g. other schools, communities, states)?
 - This type of *surveillance* may possibly facilitate the development of national or community-wide or school-wide efforts at improving or reducing factors contributing to rising rates of overweight.
- 2.) Are the measurements being collected in order to provide information to parents?
 - If this type of *screening* is the goal, similar to current programs to identify vision and hearing problems, then schools must determine what to tell parents and whether to notify all parents, or only the parents of children who are overweight (or underweight) or at risk for overweight.
 - What will parents be told when they are notified?
 - Will they be advised to seek medical guidance?
 - Will another action plan or behavioral recommendations be provided?
 - Can the school's method of presentation increase the likelihood that raising weight concerns will do more good than harm to the overweight child?



- a. Is the goal of parental notification treatment or is it prevention?
- This will influence whether all parents are notified or only the parents of high BMI children who are already at risk.
 - What is the school's expectation of parents who are told of children with high BMI scores?
 - Will parents be expected to take action based upon the information they are given?
 - Can we fairly (or realistically) expect parents to help change the child's weight when health care professionals are frequently at a loss when confronted with the problem?
 - Is there any reason to think that providing messages about the benefits of physical activity and healthy eating to all parents, including parents of overweight children, will help to prevent future increases in BMI?
- b. To what extent is the school itself prepared to make changes based upon the data it collects?
- Is the school prepared to institute programs such as nutritional or physical activity programs that might well be beneficial to children and might be sought by parents who are notified of their child's weight status?
 - Does the school share responsibility for the problem with the parents?
- Children spend a significant portion of their time in school, possibly receiving two out of three daily meals in the school setting along with products from on-campus vending machines. Schools rarely offer nutrition education, and physical education has been pared back significantly

Using Growth Charts and Assessing Children's Growth

The generally accepted purpose of weighing and measuring children is to determine if they are growing "normally." A wide range of heights and weights are considered 'normal,' since children grow at very different rates even when they are the same age. The Centers for Disease Control and Prevention and the National Center for Health Statistics issued new growth charts for children in 2000, including new body mass index (BMI) charts.

BMI is the unit of measurement currently used for assessing the growth of children. BMI is calculated by dividing one's weight in kilograms by one's height in meters squared. The new BMI charts can be accessed at <http://www.cde.gov/growthcharts>. It's important to be aware that BMI is only a rough estimate of risk for overweight.

- For an individual child or adolescent, BMI is likely to change over time, moving up or down as height and weight vary in relation to each other and as the child's muscle mass and stage of puberty change.
- Some children who have a high BMI are actually not at risk of having too much body fat while others with a lower BMI do have high body fat.
- Not all children with high BMI are at high risk for overweight ("false positives").
- Some at risk children are not identified by their BMI score ("false negatives").

- BMI is a good “clue” but only additional testing by a healthcare provider can fully assess the actual situation.
- BMI calculations are therefore most useful not for individual diagnoses but for surveillance of the body composition of a large group, such as all the children of a particular age or grade level at school.

Further, interpreting of a BMI is equivalent to making a diagnosis, therefore school administrators should insure that they have personnel qualified in this area.

Logistics of Measuring Children’s Weight and Height

As a school considers whether to measure children, it must consider the means by which heights and weights (the required variables for determining BMI) are to be gathered.

- On the methodological level, standardized equipment will be required and staff must be trained in the methods of precise measurement. The statistical process by which BMI is calculated requires that measurements be accurate.
- But as important as the need to ensure accuracy is the need to protect the privacy and self-esteem of the students.
 - One must avoid encouraging unrealistically thin body images and stigmatizing children who do not possess the current ideal body shape.
 - This concern is equally important when and if a decision is made to notify parents of individual children about their child’s BMI measurement.
 - Parents of overweight children may even feel that they are being blamed or stigmatized as bad parents, in common with a group of parents in Pennsylvania who were notified by school authorities of the results of school measurements (“Letters on Students’ Weight Ruffle Parents,” S.F. Chronicle, March 26, 2002)
- School authorities must also find ways to ensure that notification, albeit well-meaning, doesn’t lead to more harm than good.

An overweight prevention pilot study in Cambridge, Massachusetts (Chomitz, *et al*) reported that among parents who were notified by elementary schools that their children were overweight or at risk for overweight the most common nutritional responses were to “put child on a diet,” “skip meals or snacks,” or “give diet pills or herbal supplements.” These behaviors are all too likely to increase the children’s weight problems in the long run and they are certainly not what the schools had in mind when they sent home advice to serve fruits and vegetables and follow other accepted nutritional guidelines.

- Factors to consider:
 - Consider the obvious costs of notifying parents (staff time, mailing, responding to queries) as well as the potential for damaged self-esteem and unhealthy weight loss practices among identified children.
 - If the decision is made to notify parents, behavioral messages should be realistic, non-judgmental, actionable, and specific.

- Although personalized messages to parents of at risk children probably get more attention, most children (and their siblings) can benefit from healthier lifestyles, and prevention may be more effective than treatment.
- If referrals are made, are they for treatment (e.g. physicians/health care providers or weight management programs) or prevention (e.g. after school physical activity programs or nutrition classes)?
- Are safe and effective programs (whether for treatment or prevention) available and accessible to the families served by the school?
- Are there alternative activities that can be instituted on campus that may be more effective?

Alternatives: Making Changes in the School Environment

If the information you have collected tells you that many children in your school are overweight or at risk for overweight, you may wish to consider health-promoting changes in the school environment. The costs of these changes, like the costs involved in parent notification and in the process of measurement itself, will have to be viewed within the context of school budgetary concerns. All of the students can be encouraged to eat healthfully and to be physically active since good nutrition and an active lifestyle are known to be protective against undesirable weight gain.

Healthy behavior messages can be incorporated into the academic curriculum throughout the school year.

- Nutritious choices can be made more available in school cafeterias, vending machines and other school-based food venues.
- Less healthful food choices, such as sodas and other sweetened beverages, candy, chips and high fat foods, may be eliminated or restricted on campus.
- Opportunities for physical activity at school may be expanded, either by regular physical education classes or in after school programs.

Alternatives: Working Within the Community

Since the prevalence of childhood overweight is rising throughout the country, you may find that the children at other schools within your district are at risk for overweight.

- Cooperative efforts within the district may be appropriate when it comes to developing programs in response to the height and weight measurements of your students.
- It may also be possible for the district to participate in coalitions with other community groups that are concerned about rising rates of childhood obesity.

Recording Changes over Time

If annual height and weight measurements of students are taken, you will be able to look at progress over time, both in the overall school population and--if record keeping techniques permit--for the individual child.

- This will give the school a sense of whether any programs that it institutes are effective.
- It will provide ongoing information on the health status of the school population.

- It is important to remember, however, that change in this area may be slow.
- Healthful programs that have been developed should be maintained even if they do not produce immediate results.

Sharing Information with Parents

Decide whether to send information to parents:

The school must decide whether to give BMI results to individual parents. Guidelines for this decision include the following criteria:

- Is the condition serious?
- Do effective interventions exist?
- Are parents likely to be the most effective change agents?
- Is this the most cost-effective use of available resources to address this problem?
- What are the risks?

Decide how to present information to parents:

If you decide to send BMI results to individual parents:

- Define your objective.
- Do formative research (e.g. focus groups) to determine receptiveness of parents and children and to design your approach.
- Determine if you will target children of all sizes or just children who are overweight or at risk for overweight. If targeting all children, will the messages differ?
- Choose behavioral messages that are clear, actionable, safe, and effective; include warnings about inappropriate actions.
- Implement school, community and health system-based efforts to reinforce advice given to parents.
- Make sure any referrals are realistic, offer effective programs, and are accessible.

Appendix A. Techniques for Measuring Heights and Weights

The Appropriate Setting

- Each child should be weighed and measured in private with no other children present.
- Recruit an adult to record the measurements or do it yourself. Do not have another child do it.
- Consider having the child face away from the scale if s/he appears anxious about being weighed.

Appropriate Comments to Children

- Do not comment on the height or weight of a child at the time the measurements are being taken.
- Neutral comments such as “Thanks, you can get off the scale now” are appropriate.
- If a child makes a negative comment about his/her body, it is appropriate to say, “Kids’ bodies come in lots of different sizes and shapes. If other kids are teasing you about your body, let’s talk and see what we can do about it.”
- Teachers and other school staff should discourage teasing by modeling and promoting respectful behavior.
- The philosophy “we respect the bodies of others even though they are different from our own” should guide words and actions.

Measuring Weight

Children should be weighed using a platform scale.

- This may be a beam balance scale or a digital (electronic load cell or strain gauge) scale. Check your equipment regularly to make sure you are getting accurate measurements.
- Scales should be calibrated on a routine basis. Calibration involves putting known weights on the scale to check accuracy.

Procedure for Measuring Weight:

1. Ask child to remove outer clothing and shoes.
2. Before the child steps on the scale, place the scale in the “zero” position.
3. Ask the child to stand still with both feet in the center of the platform.
4. Record the measurement to the nearest $\frac{1}{4}$ pound or 100 grams.
5. Have the child step off the scale.

Measuring Height

A standing height board or stadiometer is required. This device has a flat vertical surface on which a measuring rule is attached. It also has a moveable headpiece and either a permanent surface to stand on or the entire device is mounted on the wall of a room with a level floor.

Procedure:

1. Preparing the Child to be Measured:
 - Before you begin, ask child to remove shoes, hat, and bulky clothing such as coats and sweaters.
 - Ask the child to remove or undo hair styles and hair accessories that interfere with taking a measurement. In rare cases, a child may be unwilling to undo an intricate or costly hairstyle. In these situations, care should be taken to locate the actual crown of the head.
2. Adjusting the Child's Stance:
 - Direct the child to stand erect with shoulders level, hands at sides, thighs together, and weight evenly distributed on both feet.
 - The child's feet should be flat on the floor or foot piece, with heels comfortably together and touching the base of the vertical board.
 - There are four contact points between the body and the stadiometer: head, upper back, buttocks and heels.
3. Adjusting Head Position:
 - Ask the child to adjust the angle of his/her head by moving the chin up or down in order to align head into the Frankfort Plane.
 - The Frankfort Plane is an imaginary line from the lower margin of the eye socket to the notch above the tragus of the ear (the fleshy cartilage partly extending over the opening of the ear).
 - This is best viewed and aligned when the viewer is directly to the side of and at the eye level of the child.
 - When aligned correctly, the Frankfort Plane is parallel to the horizontal headpiece and perpendicular to the vertical back piece of the stadiometer.
 - **NOTE:** When the chin is correctly positioned, the back of the head may not make contact with the board. In fact, in a very few individuals, only two points will make contact with the vertical back piece.
4. Taking the Measurement:
 - Ask the child to breathe in and maintain his/her position.
 - Lower the headpiece until it firmly touches the crown of the head and is at a right angle with the measurement surface.
 - Check contact points to ensure that the lower body stays in the proper position and the heels remain flat. Some children may stand up on their toes, but verbal reminders are usually sufficient to get them in proper position.
5. Recording the Measurement:
 - Record height to the nearest 1/8th inch or 0.1 cm.

Summary of Guidelines for the Collection of Weights and Heights

- Use the revised CDC growth charts.
- Use a calibrated platform scale and height board or stadiometer.
- Collect heights and weights in a private setting.
- Remove the child's outer clothing and shoes.
- Use only respectful and encouraging comments.
- Do not make a diagnosis unless it's within your scope of work and you're prepared to offer guidance and follow-up.

About the Chula Vista Elementary School District

Chula Vista Elementary School District (CVESD) is located between the City of San Diego and the United States/Mexico International Border. CVESD is 103 square miles in size with 318,148 residents. It is the largest kindergarten through sixth grade school district in the state. The total operational budget for CVESD is \$186,419,259 for 2013-2014 and the budget for its charter schools is \$34,749,538.

CVESD is made up of 45 schools, including five dependent and two independent charter schools. Total staff is 2,642 which includes certificated and classified employees. Over 29,000 students attend CVESD and they represent a diverse community. A majority of students are Hispanic (68%); the remaining are White (13%), Filipino (11%), African American (4%), and Asian/Pacific Islander (3%). One third of students (35%) are English learners. More than half (51%) of students are recipients of free or reduced price lunches.

