

USING STUDENT DATA TO DRIVE SCHOOL AND COMMUNITY PHYSICAL EDUCATION/ PHYSICAL ACTIVITY POLICY

Bob Rauner, Marybell Avery, Lana Peterson-Pressler
Lincoln, Nebraska

Presenters



Bob Rauner, MD, MPH

Director

Partnership for a Healthy Lincoln

Marybell Avery, PhD

Curriculum Specialist

Lincoln Public Schools

Lana Peterson-Pressler, NBCT

PEP Grant Facilitator

Elementary Physical Education Teacher

Lincoln Public Schools

Lincoln (Nebraska) Public Schools



- ❑ Located in state capital and home of **University of Nebraska**
- ❑ 2nd largest public school district in Nebraska
- ❑ 36,902 students
- ❑ 38 elementary (K-5) schools
- ❑ 11 middle (6-8) schools
- ❑ 6 comprehensive high (9-12) schools

Lincoln (Nebraska) Public Schools



Ethnicity:

- White = 69.7%
- Hispanic/Latino = 11.9%
- Black/African American = 6.2%
- Two or More Races = 6.7%
- Asian = 4.7%
- American Indian/Alaska Native = 0.8%
- Native Hawaiian/Pacific Islander = 0.1%

Johns Hopkins Public Health Problem Solving Model

1. Define the Problem & Measure Its Magnitude
2. Understand the Key Determinants
3. Develop an Organized Framework for How the Key Determinants are Related
4. Identify the Evidence-Based Interventions
5. Prioritize the Interventions
6. Find the Key Barriers to Implementation & Evaluation
7. Develop a Communication Strategy

Elements of Successful Community Change

3 Basic Principles:

- A 3-Way Partnership between:
 - ▣ Bottom up (grass roots efforts)
 - ▣ Top down (support from officials, leaders, policies)
 - ▣ Outside in (best practices from the experts)
- Action based on local data
- Community wide change in behavior is most successful if the community sees it as in its own best interest

Taken from: “Just and Lasting Change: When Communities Own Their Futures,” by Daniel Taylor-Ide and Carl Taylor, 2002, Johns Hopkins University Press, Baltimore, MD.

Change is Hard!!!



“Most organizations have a big, powerful constituency for ‘what is’ but almost no constituency for ‘what could be’.... remember that those on top have made it in the current system, and they see little personal value in changing what they know and can succeed in.”

The Power of Positive Deviancy

by Pascale, Sternin & Sternin

Collecting Data in a School System



Research request procedures

- ▣ External vs internal research
- ▣ Reasons for disapproval
 - Time (student, teacher, staff, administrator)
 - Timing
- ▣ Confidentiality
- ▣ Parent permission
- ▣ IRB Exemption
- ▣ De-identification

Collecting Data in a School System



- School personnel
 - Director of evaluation
 - Director of curriculum
 - Curriculum specialist
 - Health services supervisor
 - Principals
 - Physical education teachers
 - School nurses and health paras

PEP Grant

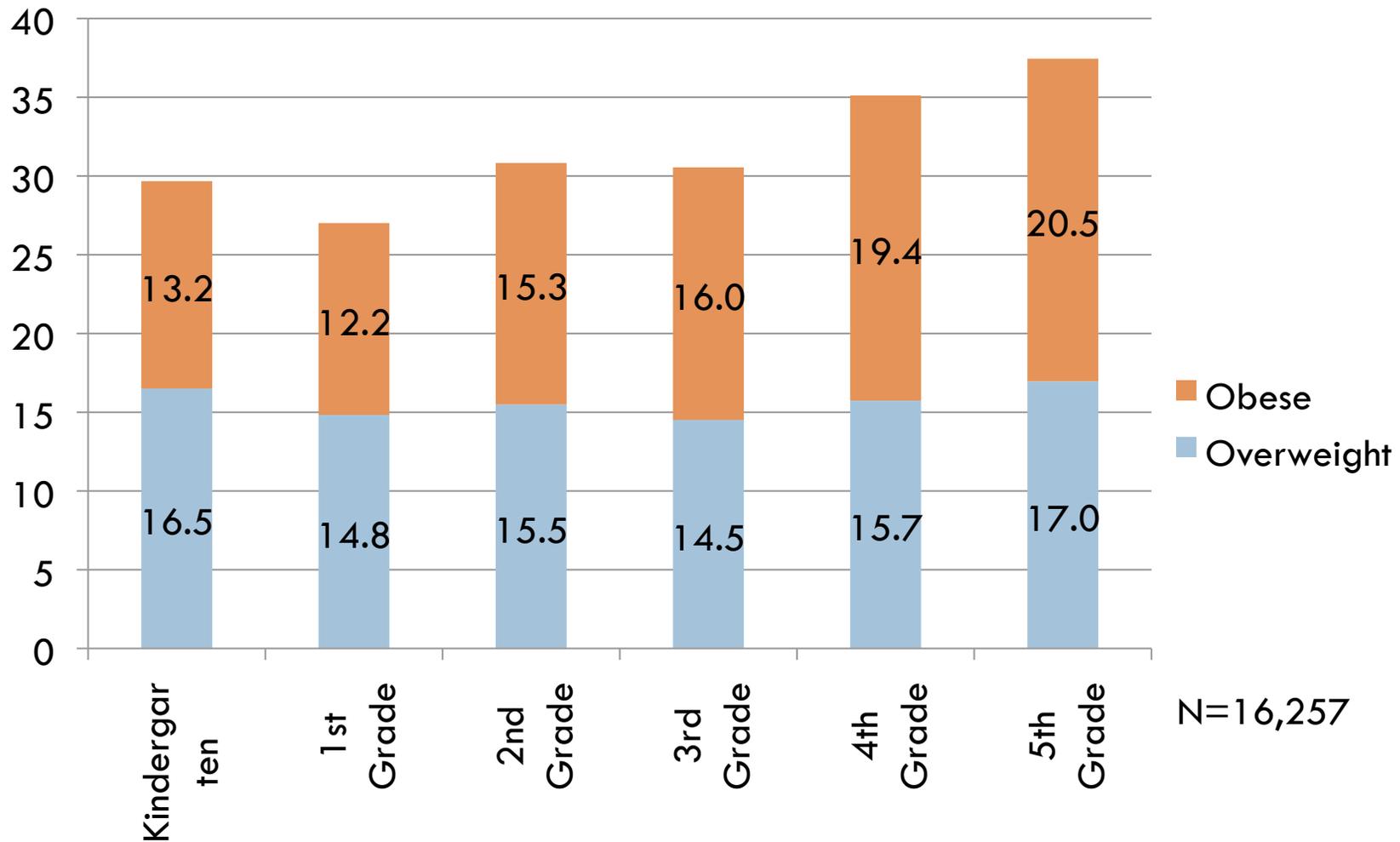
Importance of Data/Need for Data

- Data and baseline measurements needed to justify the grant
- PEP Grant creates the ability to request more data:
 - ▣ PE becomes a priority!
 - Computing Services
 - Evaluations
 - Federal Programs
 - Requests from/Information for School Board and policy makers, etc.

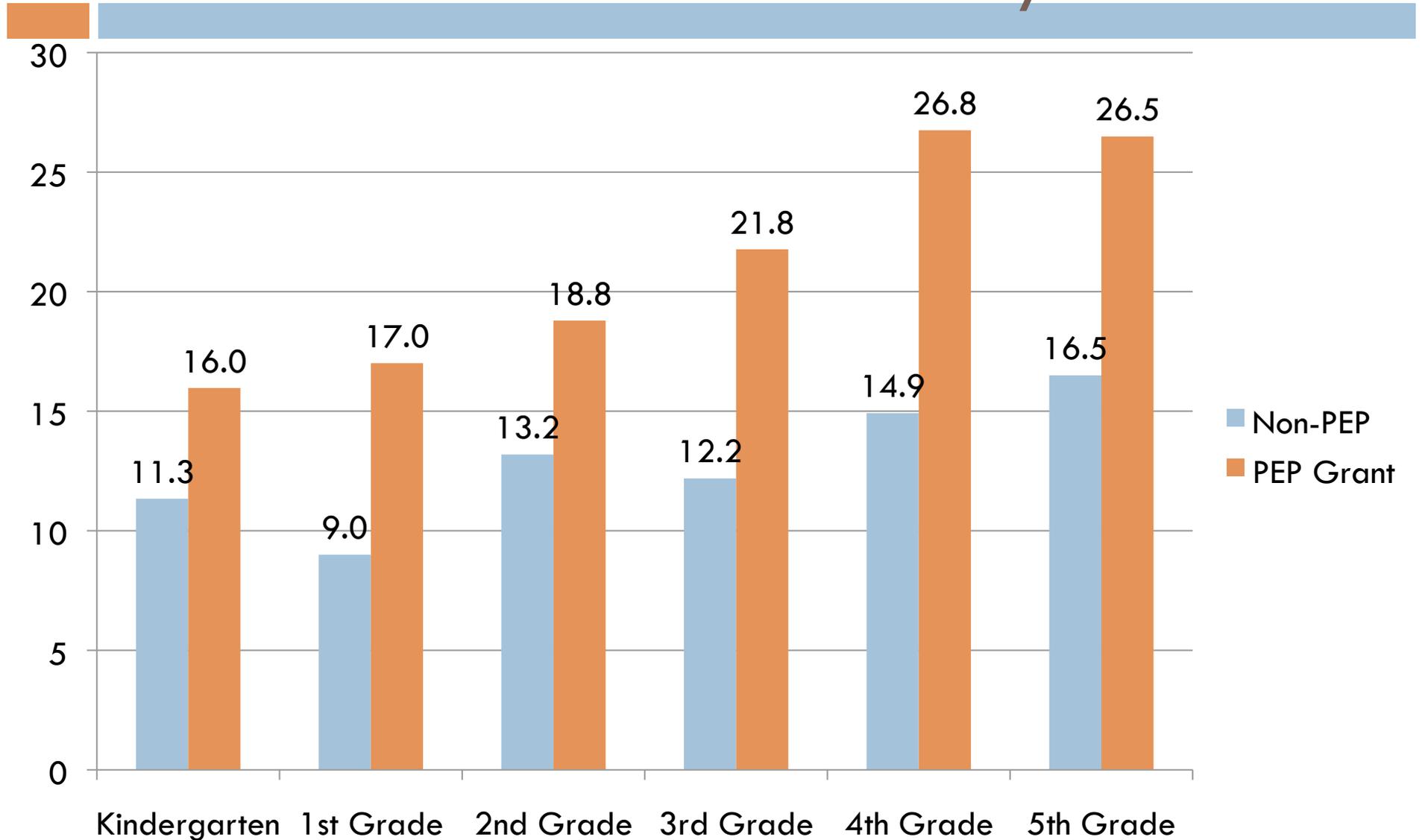
Note: LPS PEP Grant Objective (2 of 3): Increase MVPA physical activity during the school day and in before and after school programs (partnership with CLCs).

The data shows...

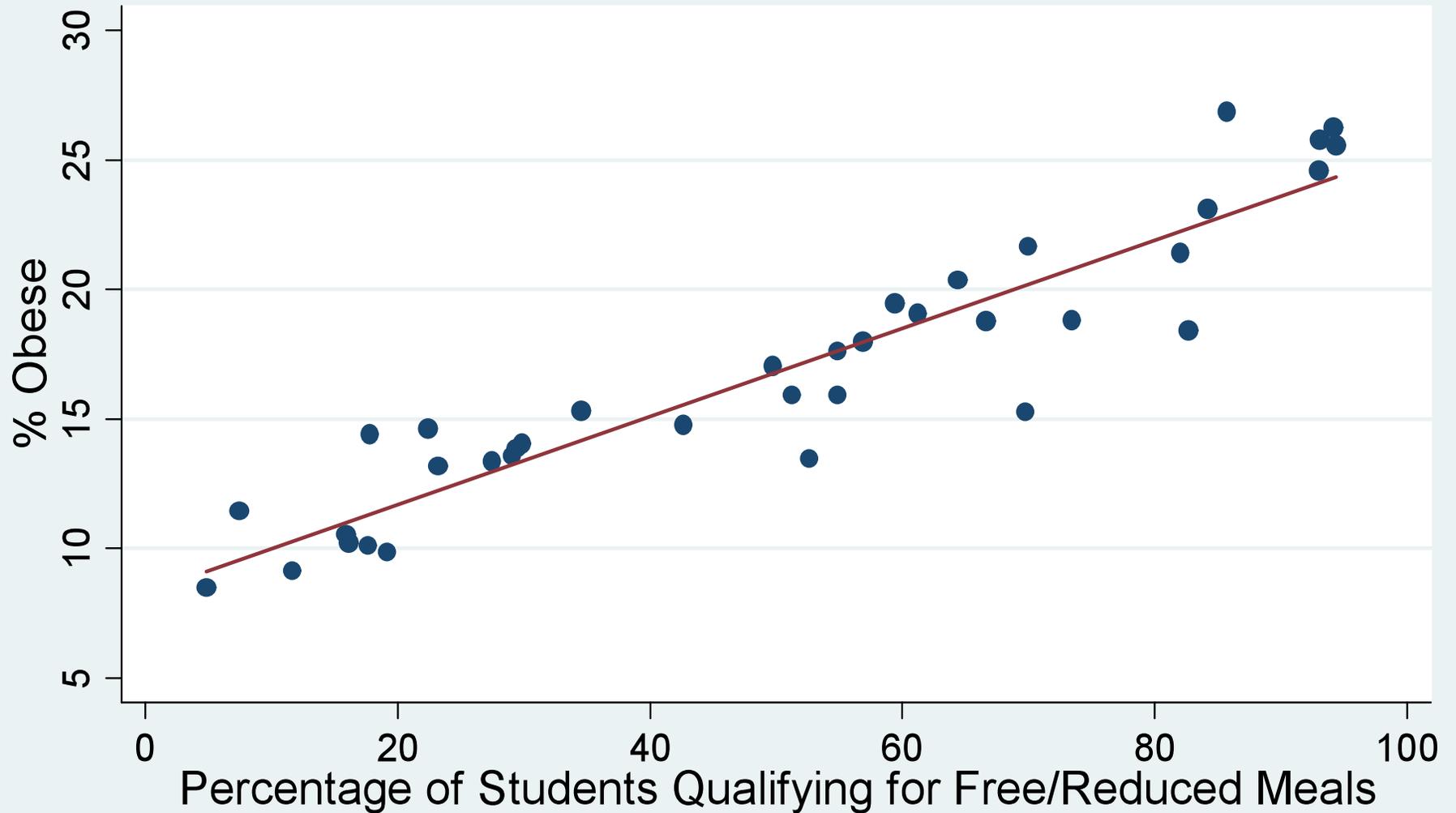
2009 LPS Elementary Schools Percentage Overweight & Obese



2009 Obesity Prevalence – PEP Grant vs. Non-PEP Grant Elementary Schools



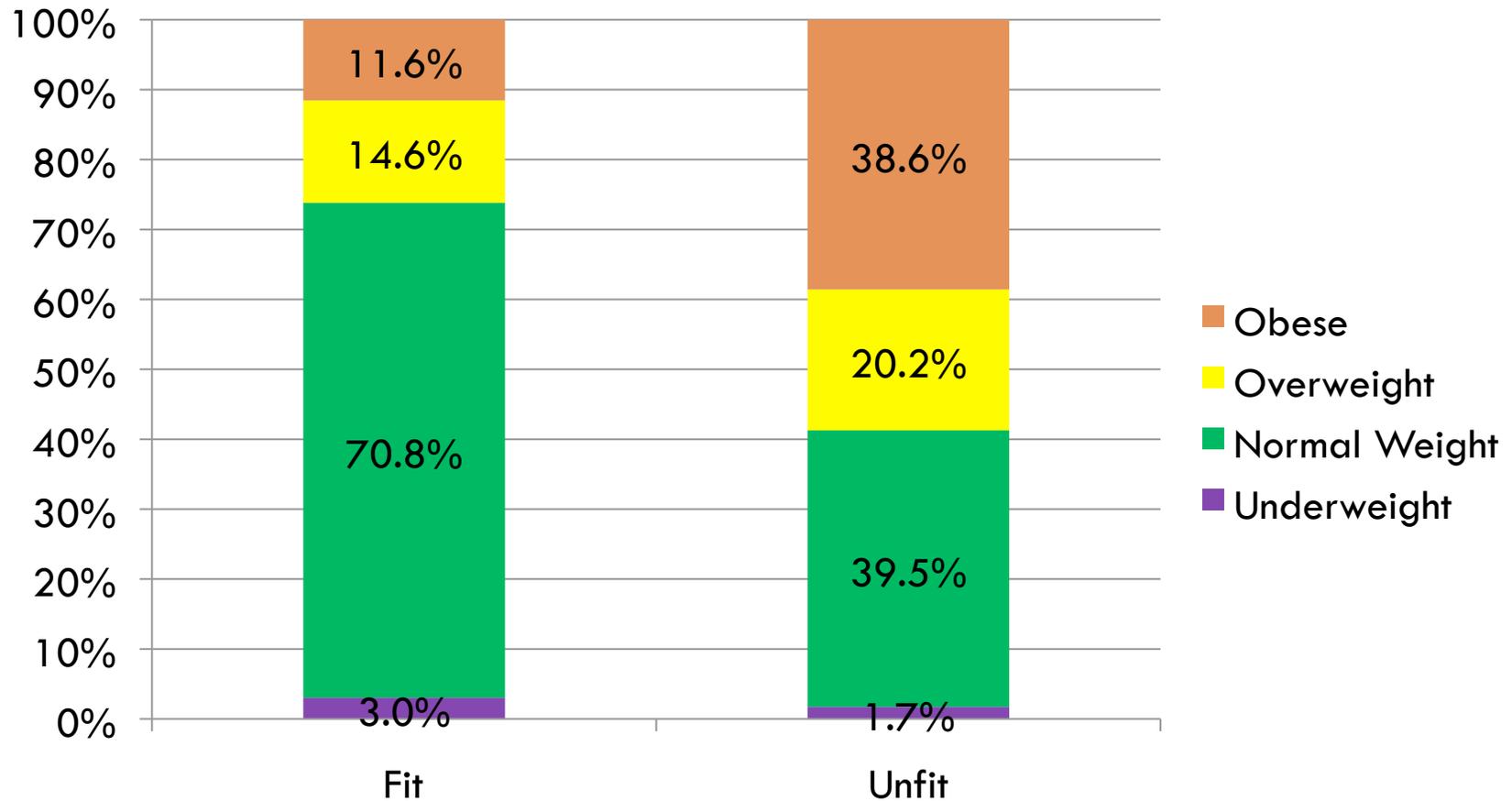
Lincoln Elementary Schools Obesity Prevalence Plotted Against % Qualifying for Free/Reduced Meals



Data Source: Lincoln Public Schools PEP Grant 2010-2011

Marybell Avery Ph.D. & Bob Rauner MD MPH

Correlation of Fitness and Weight Status, 4th-5th Grade Elementary Students



*Fitness based on Fitnessgram PACER score >14 for girls or >22 for boys.

Dissemination of Data/Results

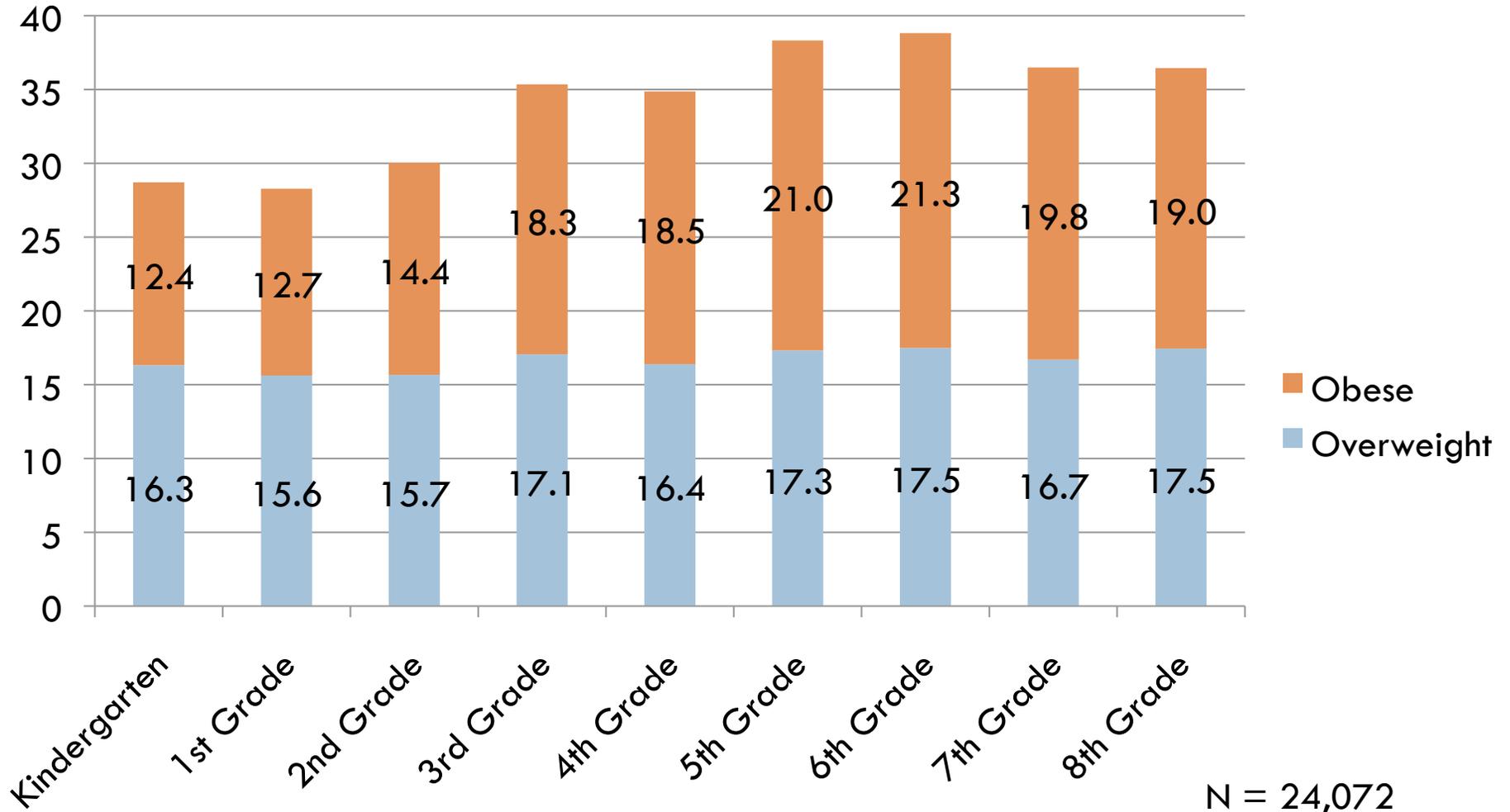
- Follow school district hierarchy
 1. Superintendent
 2. Executive committee
 3. School board
 4. Principals
 5. Teachers
- Release to public
 - Prior notification to all above
- Permission to identify schools

Building a Case for More Data



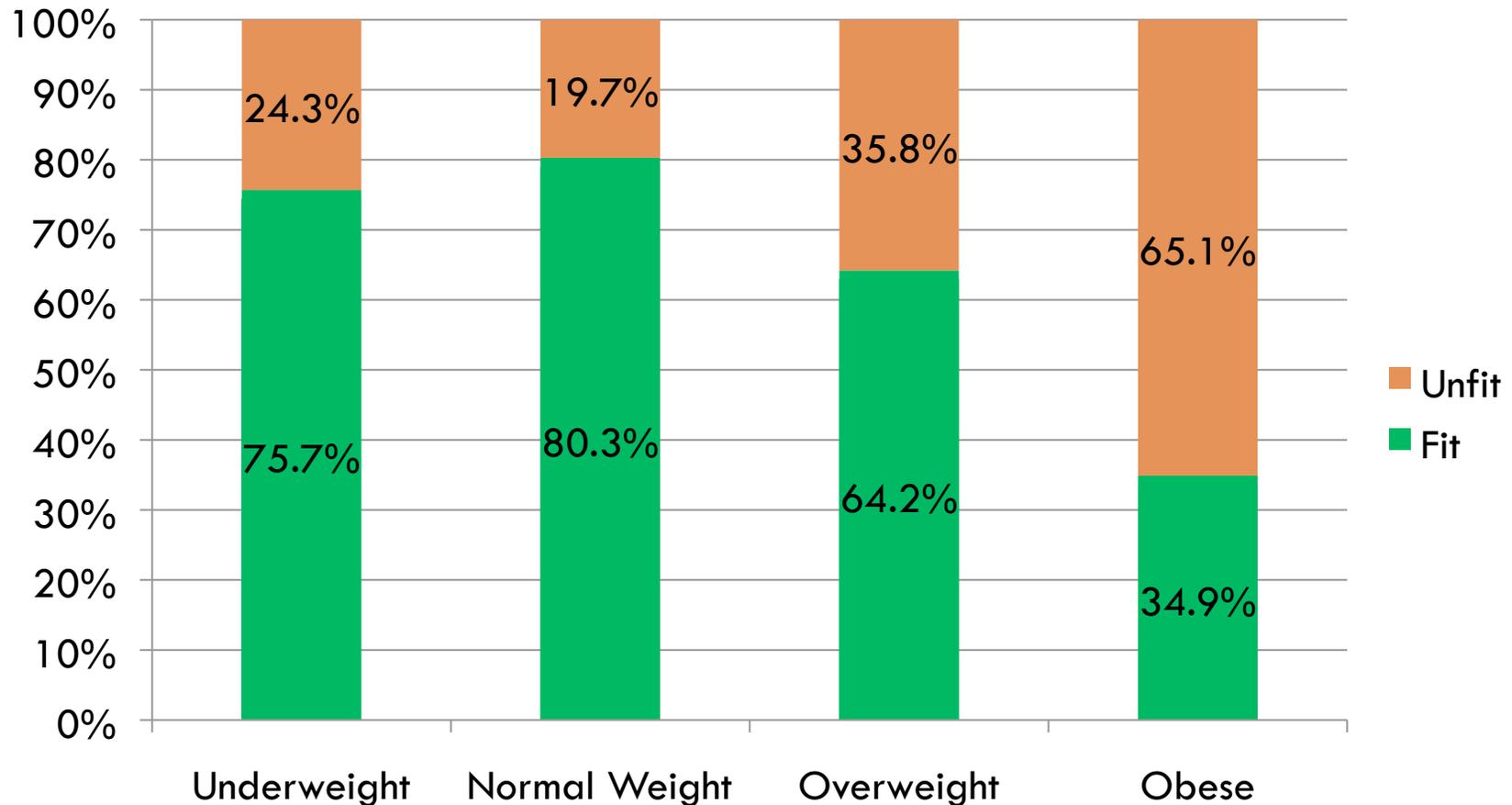
- Buy in from the School Board & Superintendent
- Buy in from the Principals, Physical Education Staff & Nurses
- Support from Computing Services
- Support from the community

2010-2011 Lincoln Public Schools Percentage of Overweight & Obese



N = 24,072

Percent of 4th-8th Grade LPS Students Passing Fitness Test by Weight Status



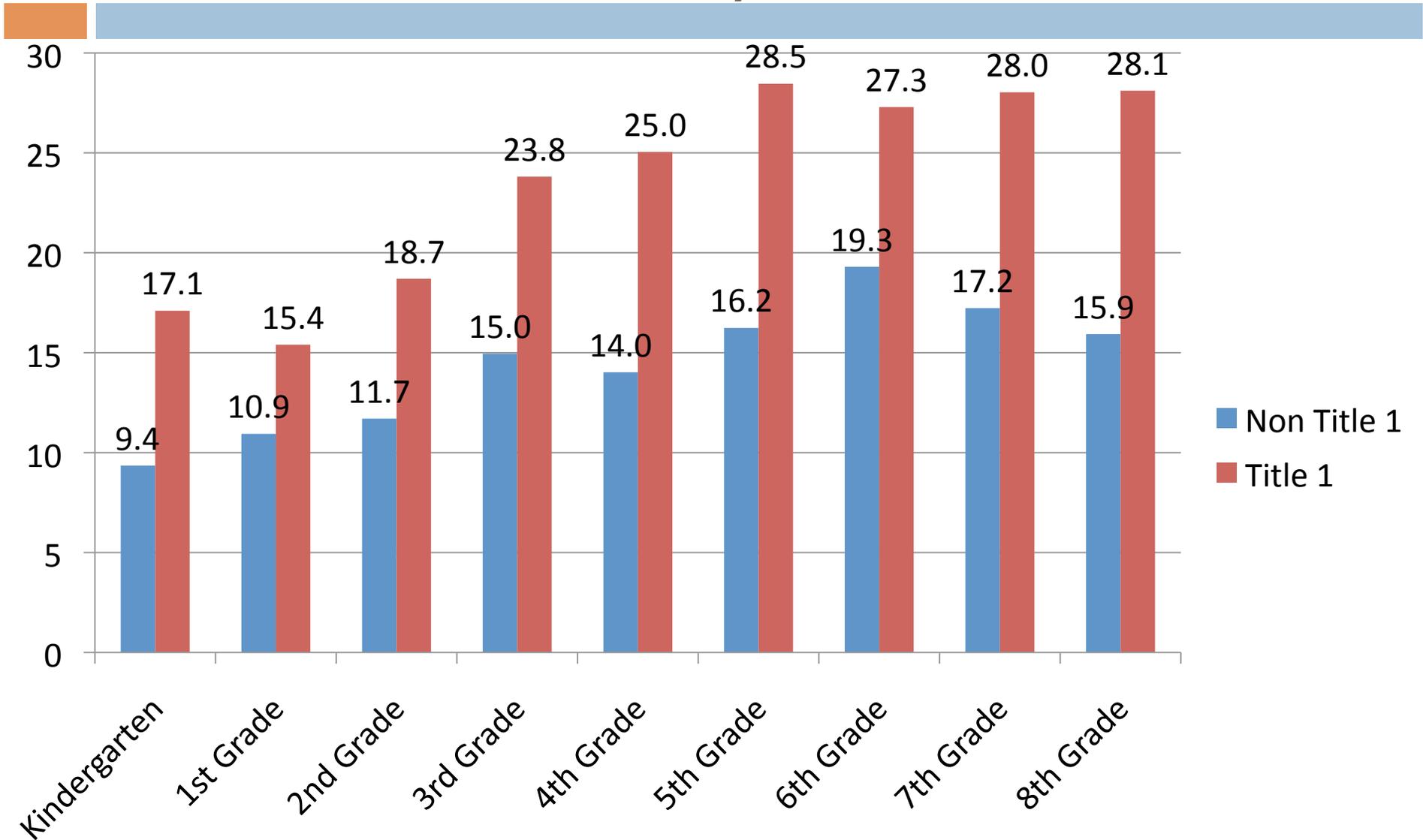
Kids Failing Fit Test: 78/321

1,422/7,219

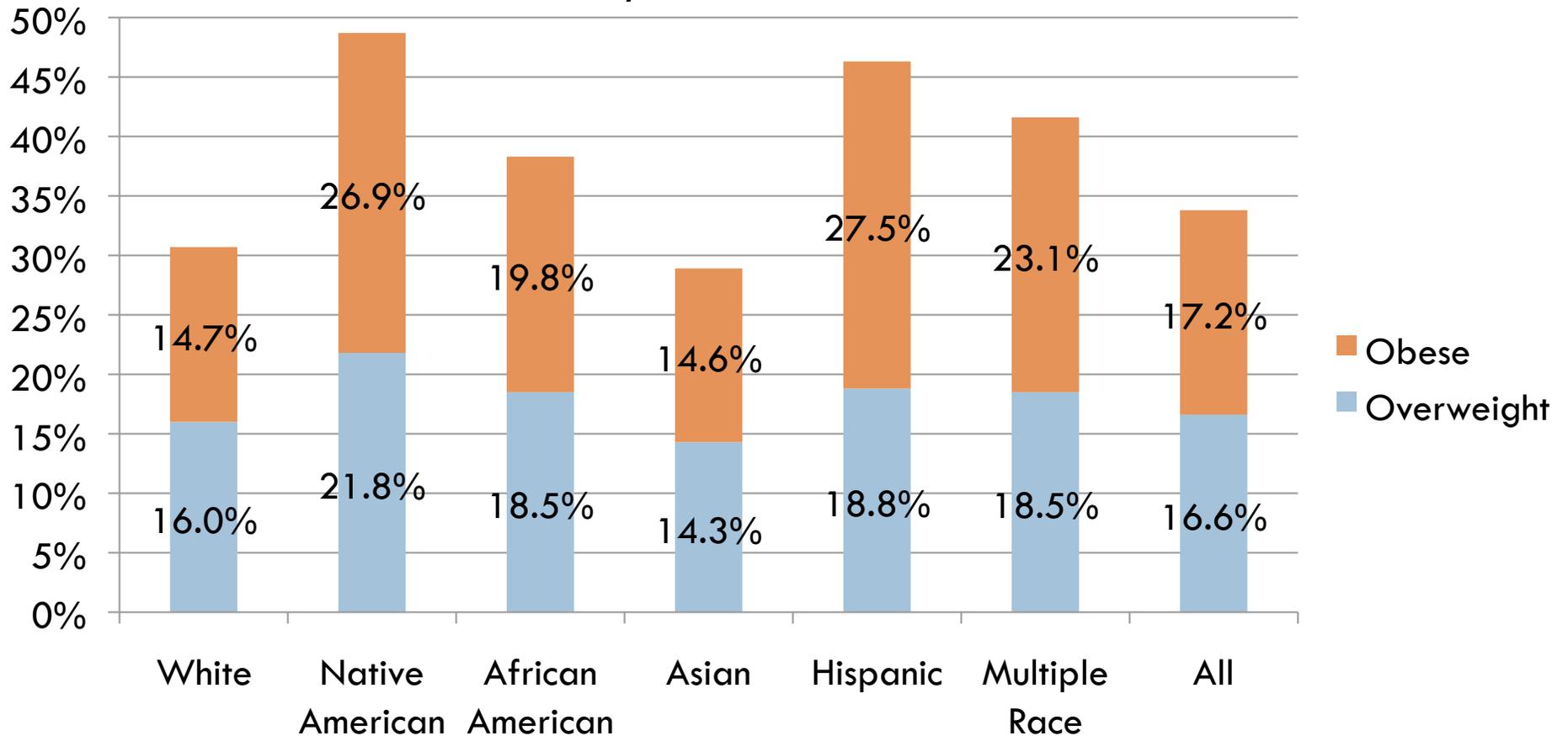
718/2,005

1,510/2,320

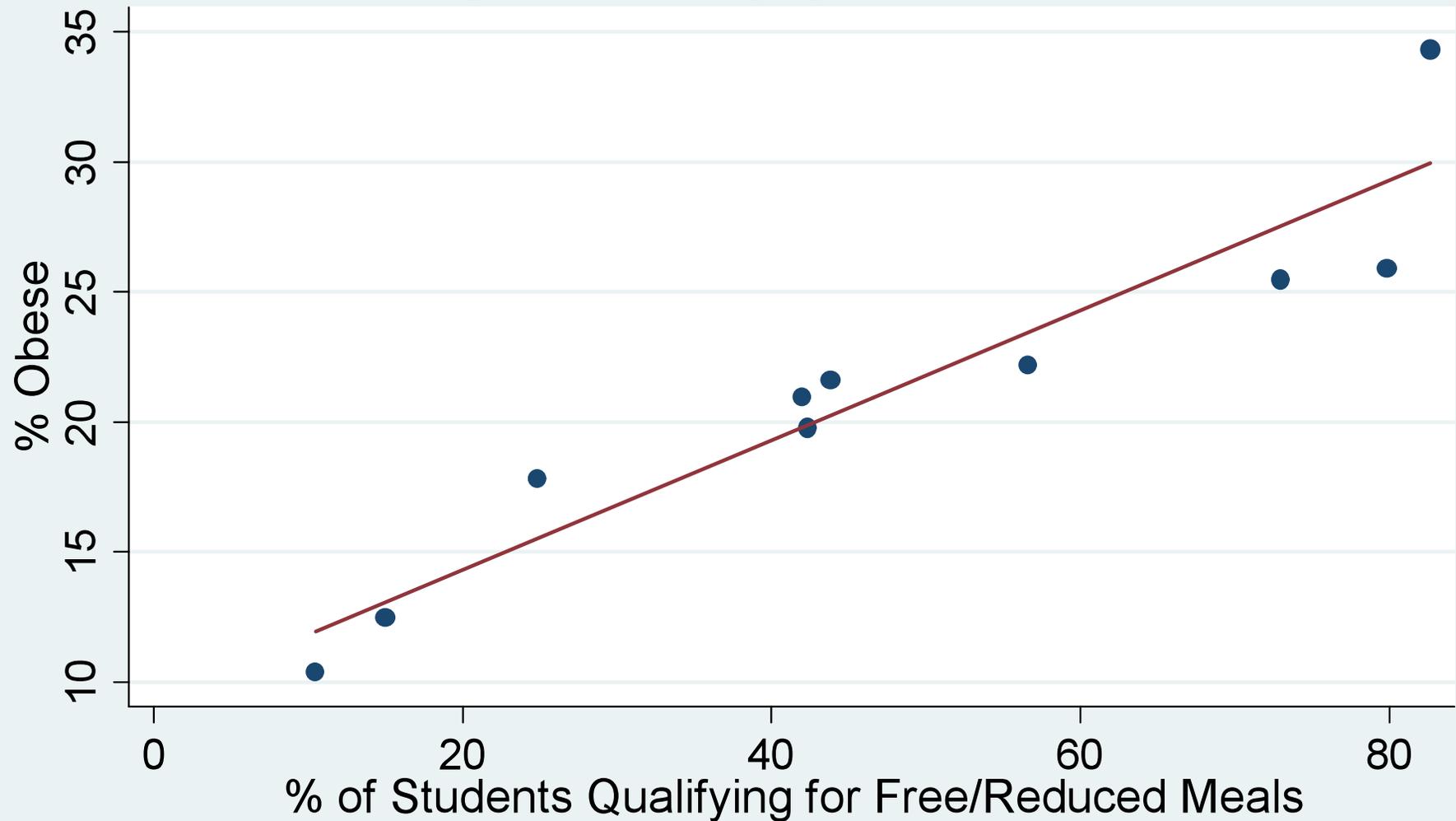
2010-2011 Obesity Prevalence – Title I vs. Non-Title I Elementary & Middle Schools



2010-2011 LPS K-8 Students Overweight/Obese by Ethnicity



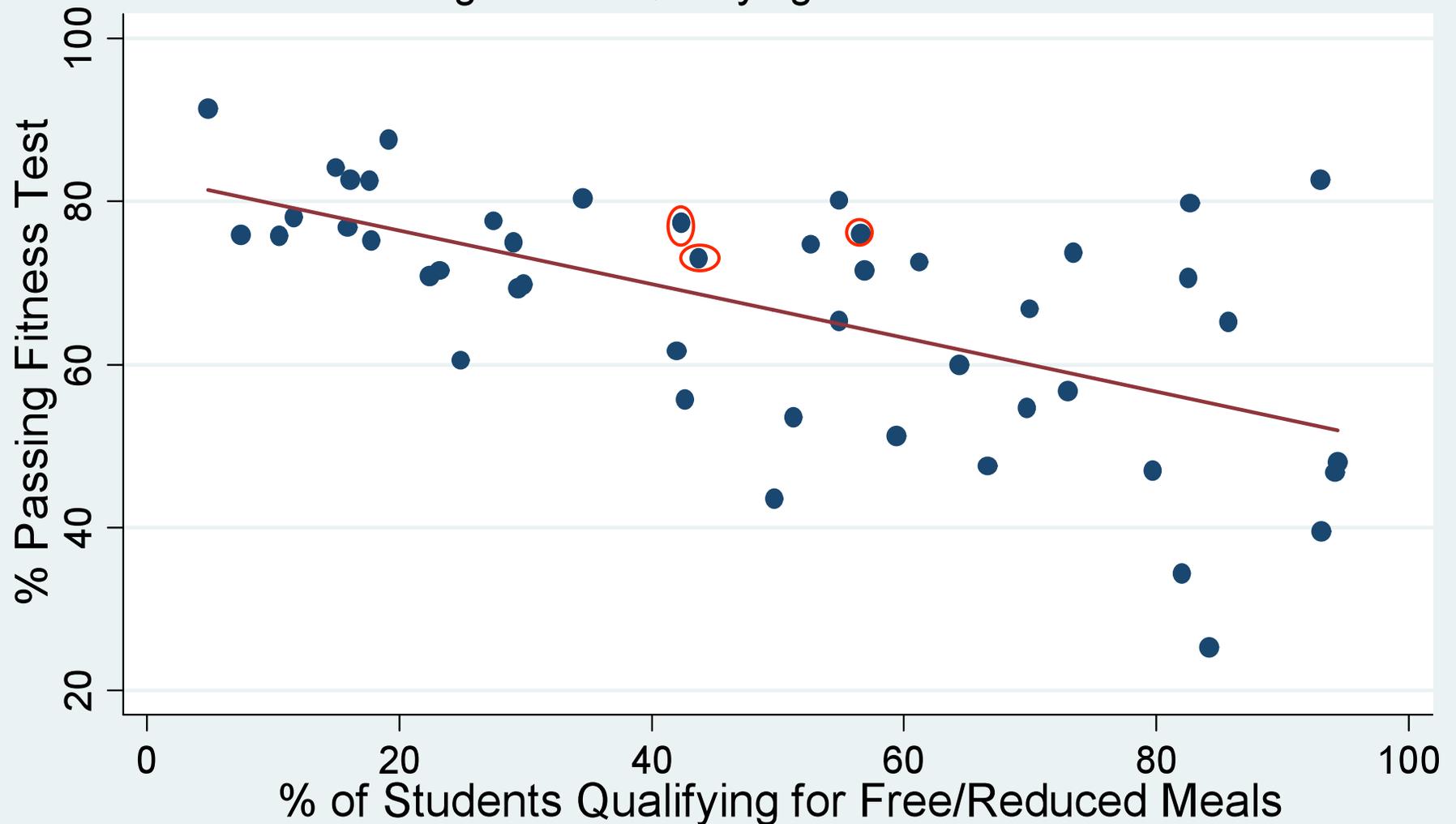
Lincoln Middle Schools Obesity Prevalence Plotted Against % Qualifying for Free/Reduced Meals



Data Source: Lincoln Public Schools 2010-2011

Marybell Avery Ph.D. & Bob Rauner MD MPH

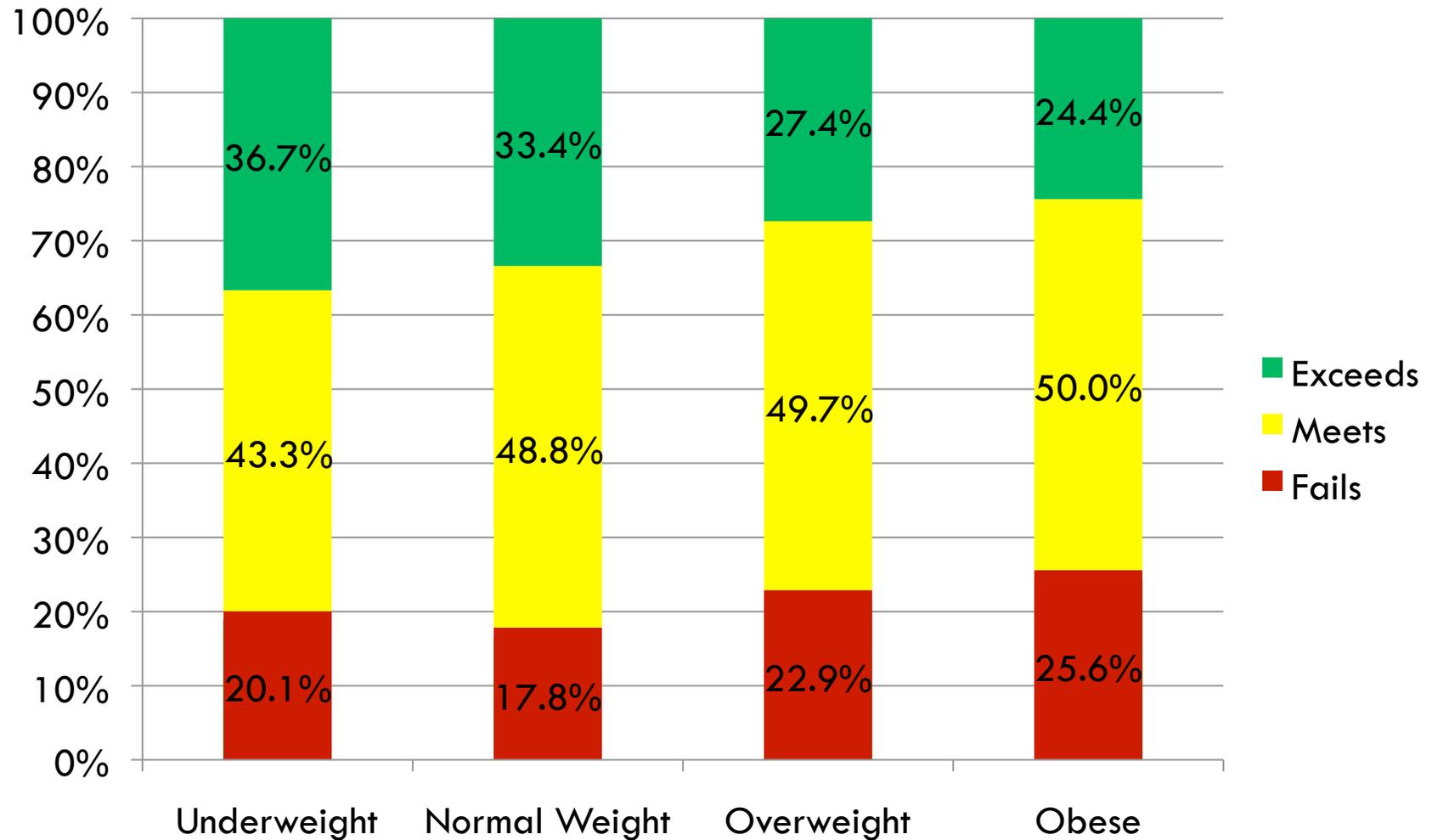
Lincoln Elementary/Middle Schools Fitness Scores Plotted Against % Qualifying for Free/Reduced Meals



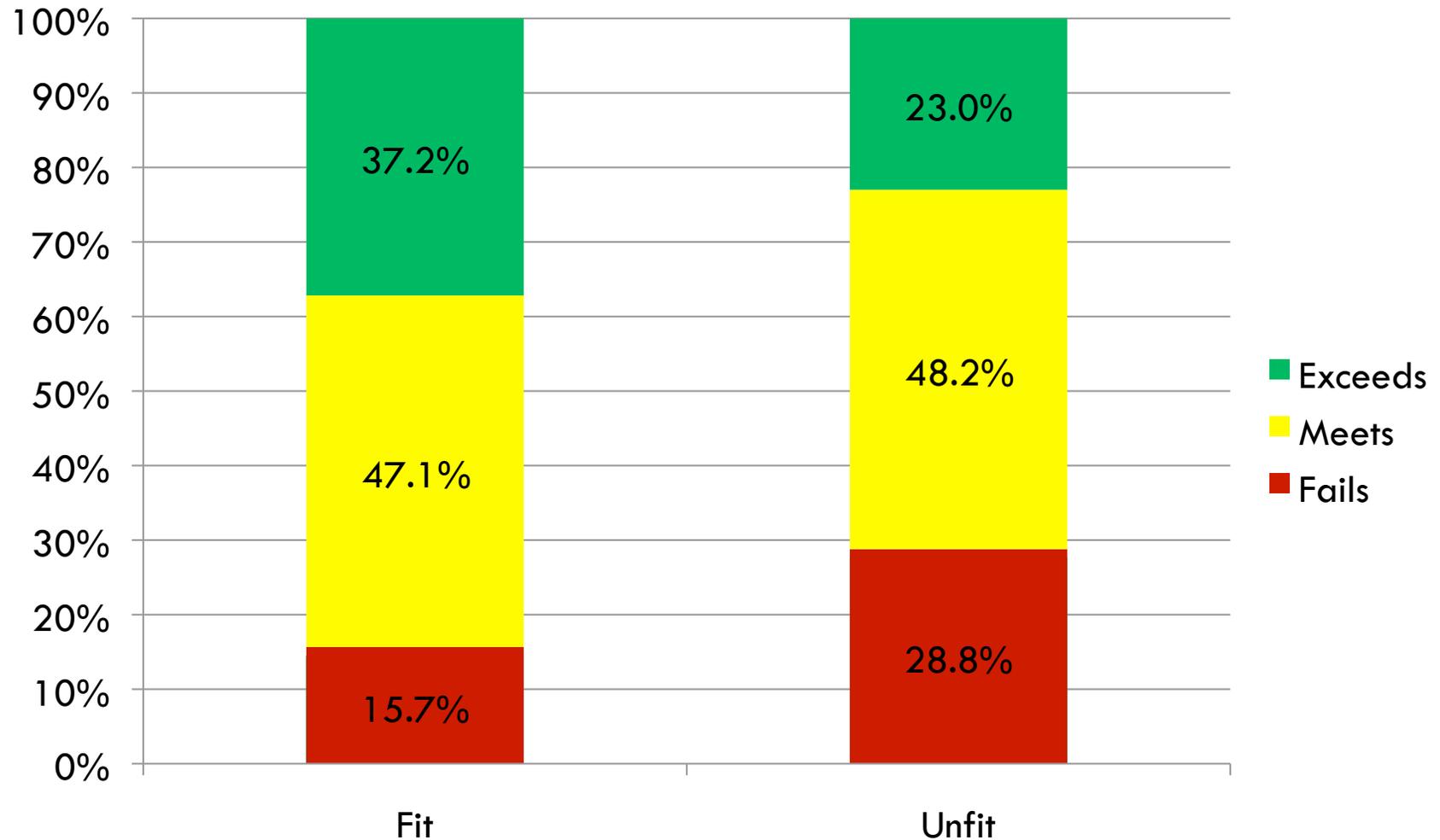
Data Source: Lincoln Public Schools 2010-2011

Marybell Avery PhD & Bob Rauner MD MPH

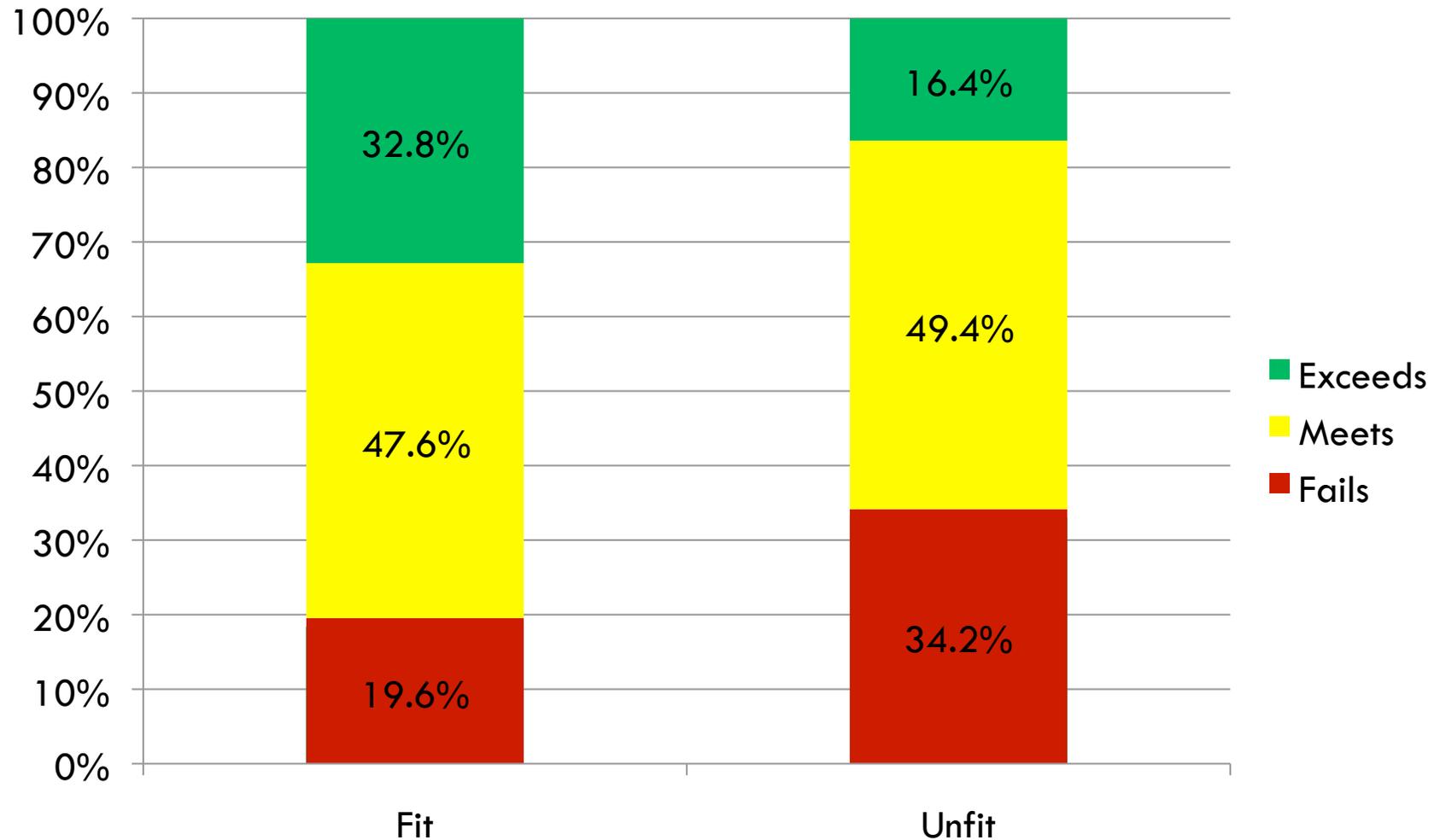
Percent of 3rd-8th Grade LPS Students Passing State Reading by Weight Status



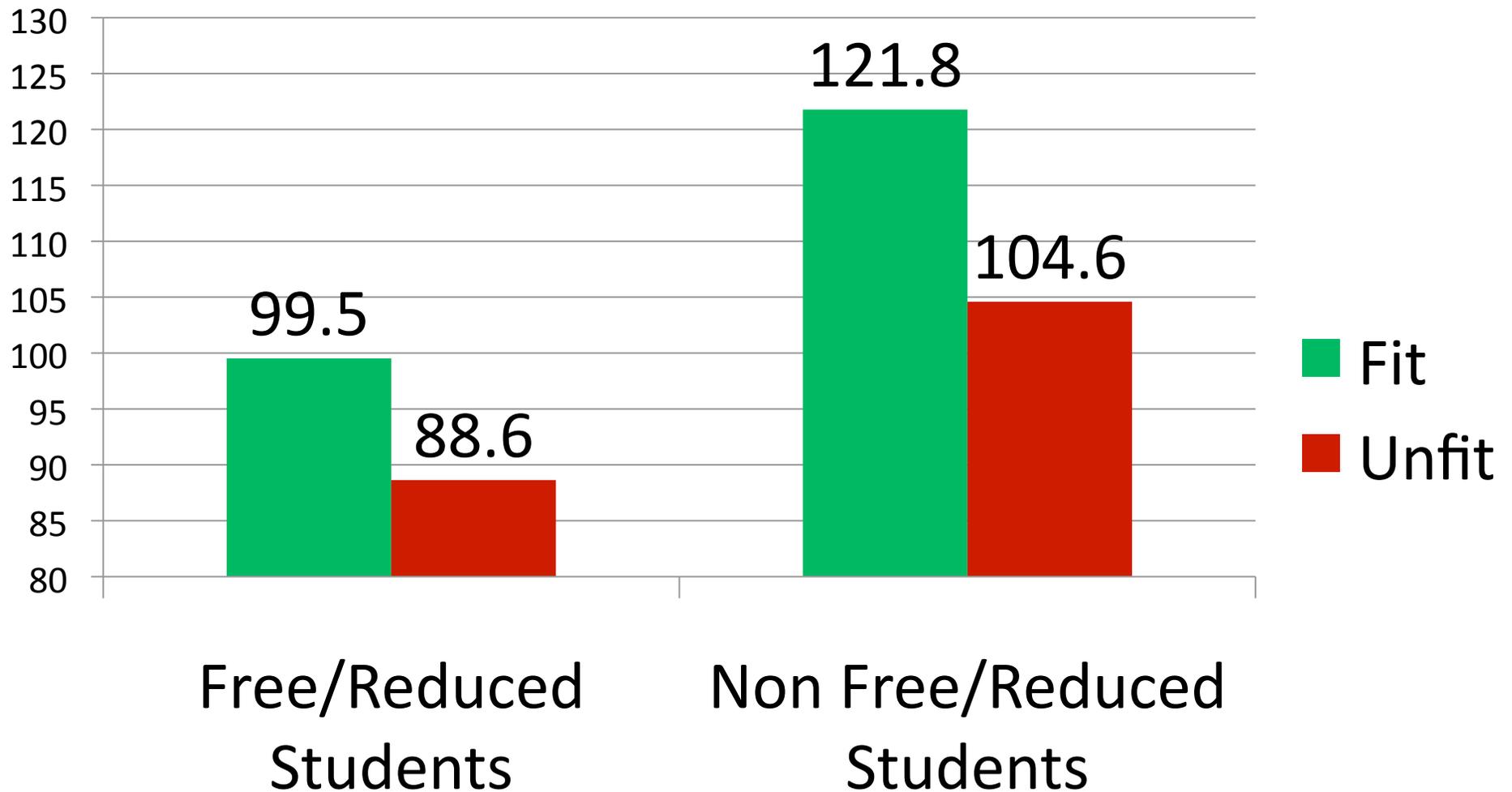
4th-8th Grade LPS Students Passing State Reading Test - Fit vs. Unfit



4th – 8th Grade LPS Students Passing State Math Test - Fit vs. Unfit

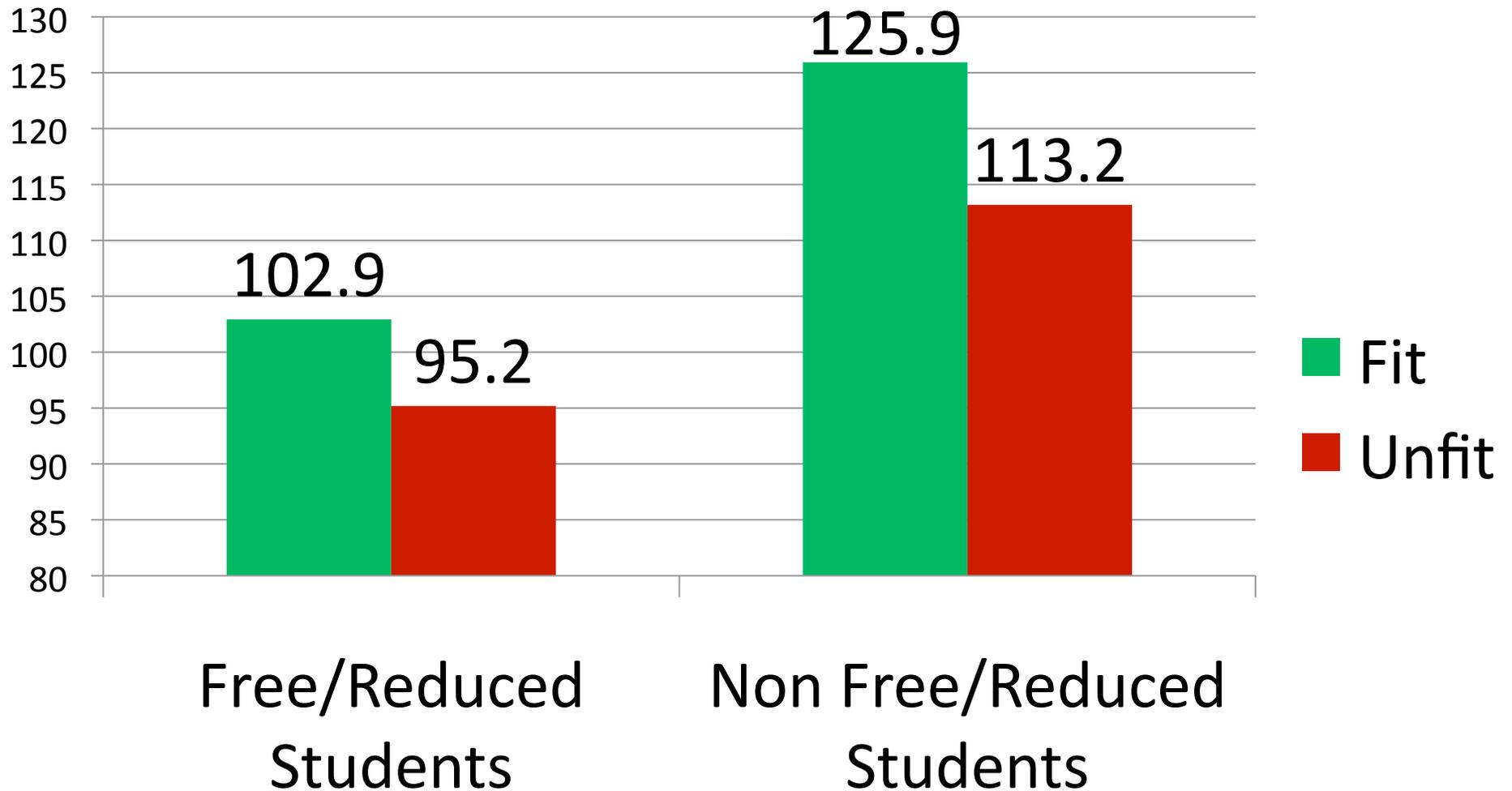


Student Fitness Effect on State Math Scores



Note: Base case - 6th grade non-white female after controlling for gender, ethnicity, grade, fitness, and free/reduced lunch status.

Student Fitness Effect on State Reading Scores



Note: Base case - 6th grade non-white female after controlling for gender, ethnicity, grade, fitness, and free/reduced lunch status.

Evidence that Aerobic Fitness Is More Salient than Weight Status in Predicting Standardized Math and Reading Outcomes in Fourth- through Eighth-Grade Students

Robert R. Rauner, MD, MPH¹, Ryan W. Walters, MS², Marybell Avery, PhD³, and Teresa J. Wanser, MA³

Objective To determine whether aerobic fitness is more salient than weight status in predicting performance on standardized math and reading tests in fourth- to eighth-grade students.

Study design A cross-sectional study of data abstracted from 11 743 students in 47 public schools. Aerobic fitness was defined by entering the healthy fitness zone of Fitnessgram's Progressive Aerobic Cardiovascular Endurance Run, which has been shown to correlate highly with maximum oxygen consumption. Mixed-effects logistic regression analyses were conducted to model the student-level effect of aerobic fitness status on passing the Nebraska State Accountability (NeSA) math and reading tests after adjusting for body mass index (BMI) percentile, free/reduced lunch status, sex, race, grade level, and school type.

Results After adjustment, aerobically fit students had greater odds of passing the NeSA math and reading tests compared with aerobically unfit students regardless of whether the students received free/reduced lunch; however, the effect of being aerobically fit on the standardized test scores was significantly greater for students not receiving free/reduced lunch. Weight status, as measured by BMI percentile, was not a significant predictor of passing the NeSA math or reading test after including free/reduced lunch status in the model.

Conclusions Aerobic fitness was a significant predictor of academic performance; weight status was not. Although decreasing BMI for an overweight or obese child undoubtedly improves overall health, results indicated all students benefit academically from being aerobically fit regardless of weight or free/reduced lunch status. Therefore, to improve academic performance, school systems should focus on the aerobic fitness of every student. (*J Pediatr* 2013; ■: ■-■).

Policy Change – District Level



- Physical Education
 - Increased graduation requirement by 33%
 - Successful PEP grant
 - Staff Development: Instant Activity/
Increasing MVPA

Policy Change – District Level



□ Physical Activity

- ▣ Required Physical Activity Time (additional recess) for all elementary students
- ▣ Limit “pull-outs” from physical education
- ▣ District wellness facilitator hired (student and employee wellness)
- ▣ School district wellness challenge (\$250,000 incentives for 5 yrs)

Program Change – School Level



- Increasing quality in Physical Education and in before/after school programs
 - ▣ Data as incentive for increased amount of Physical Education
 - ▣ Renewed urgency to make every PE/PA minute “count”
 - ▣ Do both skill competence and fitness impact achievement in academic tests?

Policy Change - School Level



- Fit vs. Unfit Student information in decision-making:
 - ▣ Provide better information for parents/ students
 - ▣ Utilize in IEP goal setting?
 - ▣ Impact Principals' decision-making?
 - ▣ Decrease behavioral incidences?

Policy Change – Community Level



- School/Community level grants: walking paths, playgrounds, school gardens, outdoor classrooms
- Community support to incorporate wellness into long term school district strategic plan
- Student research
- Community presentations to support LPS efforts
- Influencing state legislation

Implications



- What are the new “sound bites”? Now we can say...
 - ▣ Fit students learn better
 - ▣ Fit students achieve better on tests
 - ▣ Quality Physical Education helps students achieve better on academic tests

Long Term Community Targets

Obesity in Elementary/Middle School Students

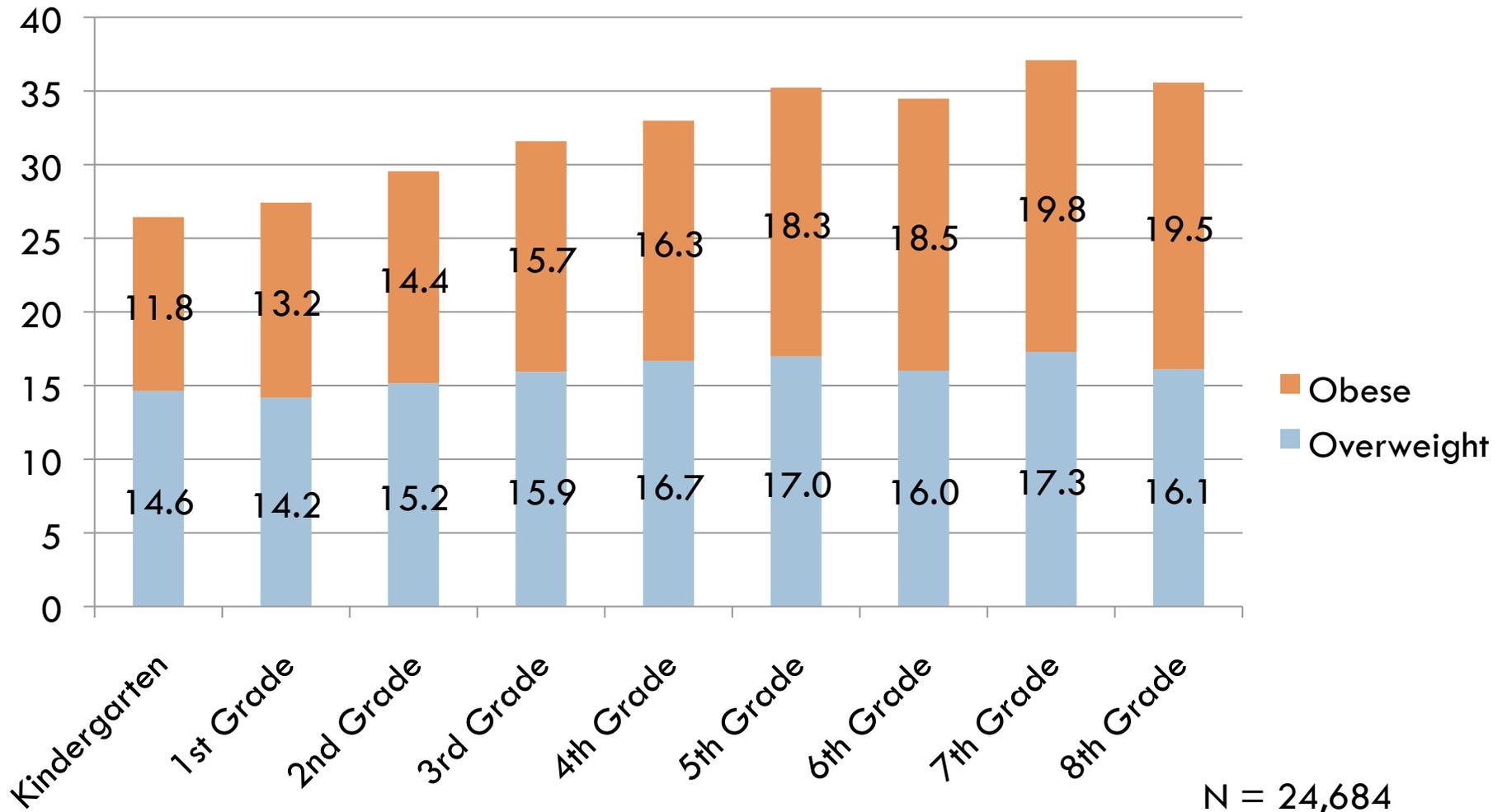
- 2010-2011: 17.2%
- 2011-2012: 16.8%
- 2012-2013: 16.3%
- 2015 Target: <15%

Students not Passing Aerobic Fitness Test

- 2010-2011: 31.6%
- 2011-2012: 30.0%
- 2012-2013: 30.2%
- 2015 Target: <15%

“Fit by 2015”

2012-2013 Lincoln Public Schools % Students Overweight & Obese



N = 24,684

3 Views of Policy Change



1. Rational
2. Incremental
3. Garbage Can

Success



what people think
it looks like

Success



what it really
looks like



Questions?