



MATCH-Motivating Adolescents with Technology to CHOOSE Health™

presented to the
NCIOM Task Force on Rural Health
January 8, 2014

What is MATCH?



How Is MATCH Different?

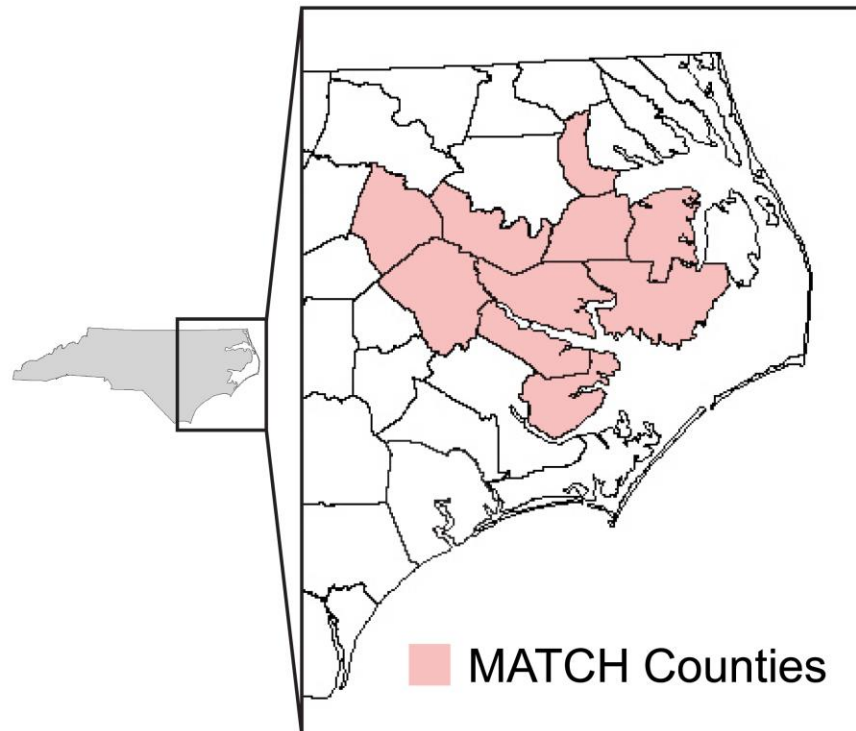
- Developed by a teacher, not researchers
- Taught at key developmental age (young adolescence) for behavior change
- Teaches individual behavior change skills
- Designed to maximize acceptance and feasibility in schools
- **Embedded within existing curricula and aligned with national educational standards, not an “add on”**
- Continued promising results- growth from 1 school to 4, 6, then 15 schools

Why MATCH?

- Plain and Simple...It Works!
- Improves BMI in 7 of 10 overweight adolescents
- Produces sustainable results years later.
- Designed specifically for NC Schools
- Based on Social Cognitive and Self-Determination Theories
- Web-based curriculum and real-time data management for evaluation

MATCH Expansion since 2007

- Collaborated with 19 schools in 12 eNC counties:
 - 17 received MATCH intervention, several for multiple years; **>3800 students served**
 - 2 additional served as controls only



Consistent Results Over Time:

	2008-09 BCBS	2009-10 BCBS	2010-11 BCBS	2011-12 BCBS	2012-13 KBR
# Schools	4	5	5	6	12
# Reached	274	634	660	789	1065
% OWOB Success*	60	56	58	69	68
% Converting to overweight (from obese)	10% (8/82)	9% (14/159)	10% (20/208)	7% (12/168)	10% 31/314
# Converting to healthy weight	14% (7/51)	17% (18/105)	10% (15/155)	24% (23/95)	20% (38/192)
# converting: Healthy Weight to overweight (undesirable change)	(5%) 5/103	(5%) 16/292	(3%) 10/337	(4%) 11/269	(3%) 15/500

Extreme Obesity Defined

- AMA Expert Committee Defined Severe (Extreme) Obesity as result of NHANES 1999-2004, which revealed 3.8% of children were $\geq 99^{\text{th}}$ %tile.
- Compared NHANES Data of obesity rates over 25 years.
- Rates of severe childhood obesity has quadrupled (.8% to 3.8%), with significant differences in race, gender, and poverty.
- *There is little data on how common severe or extreme obesity is among US children and adolescents.*

From: **Tackling Childhood Overweight and Obesity: Thresholds and Beyond**

JAMA Pediatr. 2013;167(1):87-88. doi:10.1001/jamapediatrics.2013.426

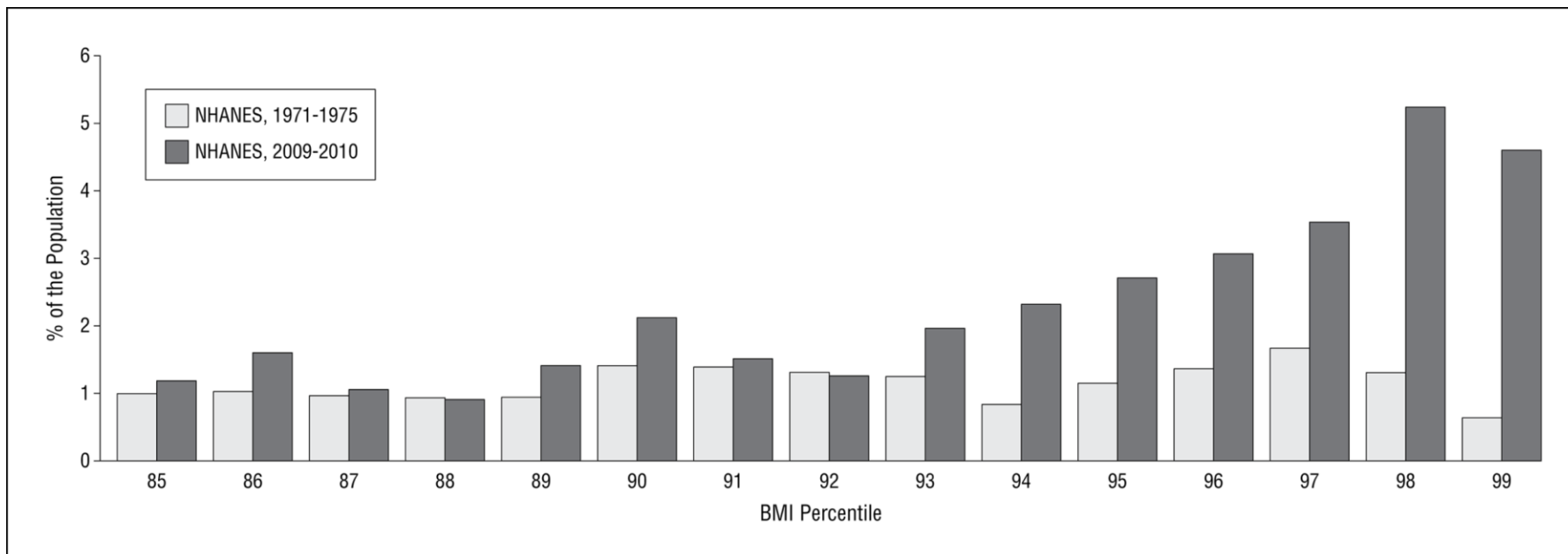


Figure Legend:

Figure. The percentage of the US pediatric population aged 7 to 18 years at body mass index (BMI; calculated as weight in kilograms divided by height in meters squared) percentiles within the overweight/obese range. The white bars represent percentages based on National Health and Nutrition Examination Survey (NHANES) data from 1971 to 1975, before the obesity epidemic in the United States, and the black bars represent percentages based on the most recent NHANES data from 2009 to 2010. The largest increases have occurred at the extremes of the BMI percentile range (95th to 99th percentiles). The percentages are weighted percentages that account for the complex survey design of the NHANES.

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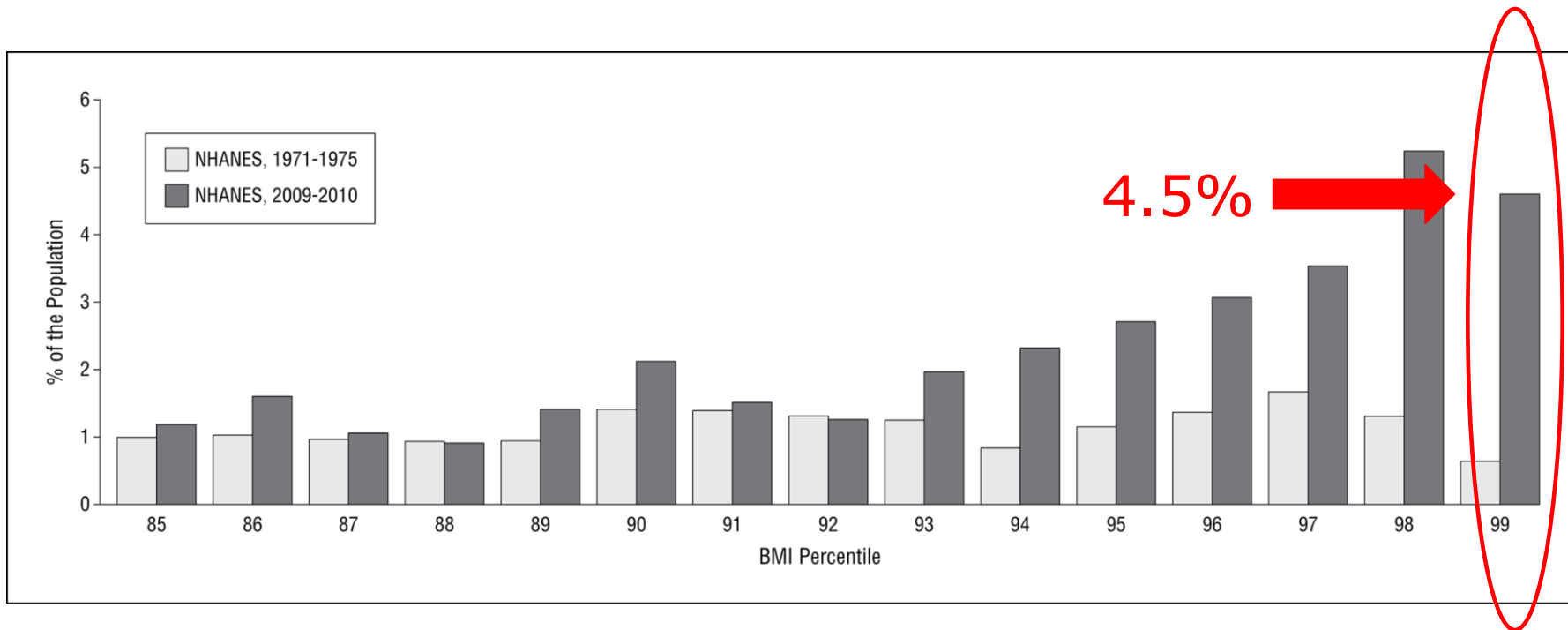


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North Carolina's Childhood Obesity Numbers

Not what you may think!

CHAMP Survey Data on Overweight and Obesity for NC children- 2008, 2011

Group	% Overweight	% Obese
2008 grade 6-8	19.5	15.2
2011 grade 6-8	19.3	16.9
2011 Non- white	21.6	18.5

2013 "F as in Fat" report lists NC with 16.4% of children 10-17 years as obese.

Comparing measured data from MATCH in eastern NC to survey results and national data

Group	% Overweight	% Obese	% Severe Obese	% All OWOB
MATCH (n=1656)	18	30	9.3	57.3
CHAMP (N=713)	18	18	No Data	36
NHANES			4.5	


Table 1. Prevalence of overweight, obesity and severe obesity by race and gender in middle school students in eNC. Data are derived from 1,656 unique students enrolled in MATCH (baseline) from 6 schools in 2011/2012 and 12 schools in 2012/2013 (Lazorick, Hardison and Crawford).

Demographic		Weight Status			
Race	Gender	Overweight (BMI $\geq 85^{\text{th}}$ but $< 95^{\text{th}}$)	Obese (BMI $\geq 95^{\text{th}}$ but $< 99^{\text{th}}$)	Severely obese (BMI $\geq 99^{\text{th}}$)	ALL OWOB (BMI $\geq 85^{\text{th}}$)
All (1,656)	Boys (883)	18.1% (160)	29.9% (264)	9.3% (82)	57.3%
	Girls (773)	18.2% (141)	32.3% (250)	10.9% (84)	61.4%
Caucasian (759)	Boys (401)	19.2% (77)	29.4% (118)	6.2% (25)	54.8%
	Girls (358)	21.1% (76)	26.0% (93)	7.3% (26)	54.4%
African Amer. (897)	Boys (482)	17.2% (83)	30.3% (146)	11.8% (57)	59.3%
	Girls (415)	15.7% (65)	37.8% (157)	14.0% (58)	67.5%



Childhood Obesity in NC

- NC rates are worse than estimated
- Long-term effects and costs will be enormous
- Schools are natural place to intervene- it is not “their job” but they can be big part of solution
- Can’t just focus on prevention in youngest kids... a whole generation is already obese



Long term Results: Change in BMI measures after 4 and 5 years

- Original 2 cohorts of 7th graders, followed-up in Feb 2012 (as 11th and 12th graders)
- Compared to a sample from the National Longitudinal Survey of Youth (NLSY)
 - Nationally representative cohort
 - Close in age to MATCH participants

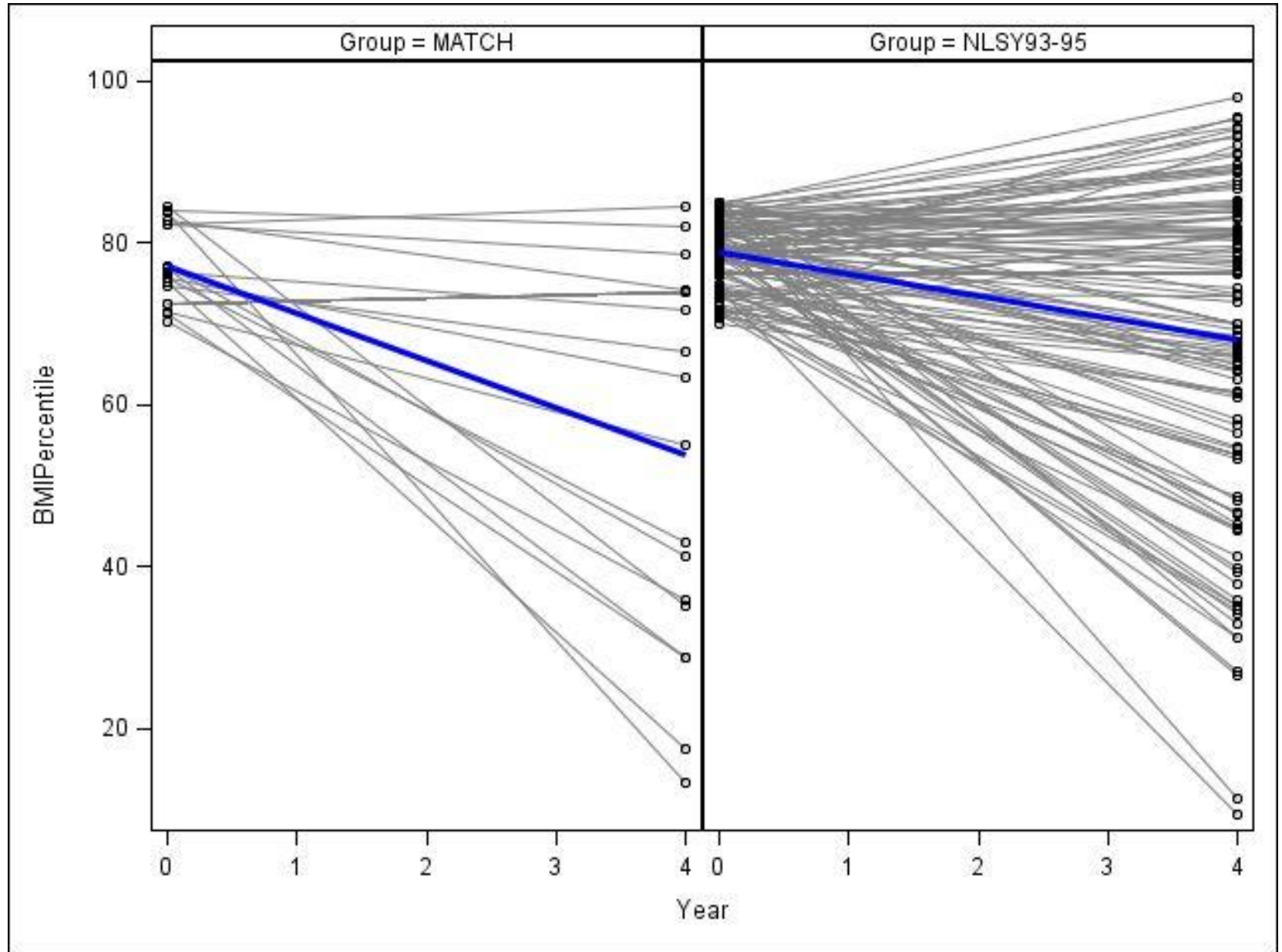
Cohort Characteristics: the groups are different

	MATCH (N=106)	Comparison Group (N=600)
Mean age (Months) (SD)	153.48 (5.78)	145.38 (10.09)
% female	57	47
% black	60	28
% hispanic	1	19
% non bl/hisp; (white)	37	53
Mean BMI (SD)	23.78 (6.08)	21.11 (5.42)
Mean BMI Percentile (SD)	77 (24.41)	65 (30.96)
% Healthy Weight	49	59
% Obese	31	20

Comparison from baseline to follow-up after 4-5 years

	MATCH (N=106)	Comparison Group (N=600)
% Overweight Baseline (age 12 yrs)	19%	17%
Follow up 4-5 years later	12%	19%
<u>Healthy Weight Group</u>		
Mean Rate of change in BMI percentile per month in the	-0.1212	0.0435

BMI %tile overtime for those starting out at 70-85th %tile for BMI: MATCH compared to comparison group



Long-term (4 year) results* of MATCH 2009-2013, compared to a **Control School**

		CONTROL GROUP N=117 (67% re-measured)	MATCH GROUP N=103 (54% re-measured)
Healthy Weight at start	<u>Incidence</u> (new cases of Overweight or Obesity)	9/58=16%	4/40= 10%
Either OW or OB at start	<u>Remission</u> (convert to Healthy Weight)	7/59=12%	14/62= 23%
Overweight at start	<u>Incidence</u> of obesity	9/23= 39%	5/30= 17%
	<u>Remission</u> to Healthy Weight	6/23= 26%	12/30= 40%


*Note- results being prepared for publication, please do not share

MATCH vs. Control: Nutrition and Physical Activity Behaviors

- In 11th grade, compared to control, students who participated in MATCH (in 7th grade) reported:
 - Less weekday TV time
 - Fewer servings per week, sweetened drinks
 - Fewer servings per week, total snacks

Conclusion of comparison of long-term results

- When tested in a very high risk population: **MATCH appears to be effective at *prevention* of progression to overweight and obesity at age 17 years**
- Such long-term results are unprecedented in community-based interventions



MATCH Addresses ALL 8 Major Contributing Factors to Obesity Costs!

Tipping the Scales Report
BeActive NC 2012

MEDICAL COSTS: \$16.4 BILLION

Excess weight
\$5.77 billion

Physical inactivity
\$3.67 billion

Tobacco use
\$1.78 billion

Low fruit/
vegetables
\$1.53 billion

High
cholesterol
\$1.30 billion

Hypertension
\$1.17 billion

Type II
Diabetes
\$.53 billion

Depression
\$.43 billion

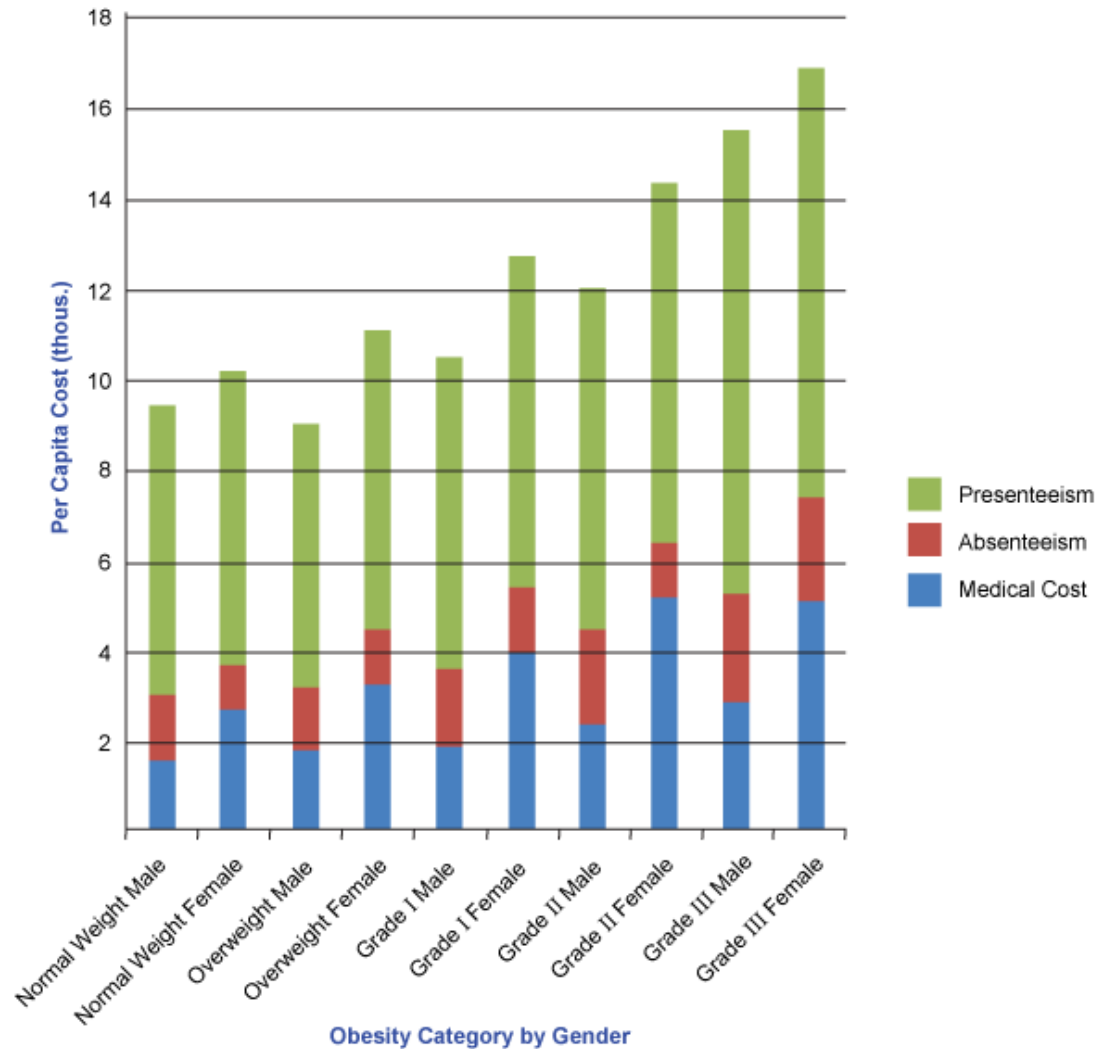
Tallying the Medical Costs

Medical costs incurred for all of the targeted conditions, including prescription drugs and hospital stays, were \$27.68 billion in 2010, up from \$17.2 billion in 2006. Of this number, the eight targeted risk factors accounted for \$16.40 billion, up from \$14.75 billion in 2006. The bottom line: **the eight risk factors are responsible for 58.35 percent of the medical costs** associated with these conditions.

EACH Overweight Kid WILL Cost

- If OWOB kids become high-end overweight adults (BMI 28+)
- By early 40's, they (and employers) will pay \$27K in medical costs and lost productivity
- By early 60's, each kid will cost \$210K in medical costs and lost productivity

Per Capita Medical Expenditures and Productivity Losses Due to Overweight and Obesity





Huge Potential Savings Exist

A 3% shift in NC Adults from **Overweight to Healthy Weight** would result in a **\$3 Billion Annual savings** in direct Medical Cost, Lost Productivity (presenteeism and absenteeism), and Workman's Compensation.

MATCH produced a **15%** change to healthy weight **4-year post intervention**, as late teens prepare to enter the workforce.



Independent RTI Report

If MATCH were implemented statewide with similar results, NC Medicaid could save up to **\$340 million** over a 5-year period on just CHARGES occurred by 7th Graders.



Alignment with NCIOM Mission

- To seek **constructive solutions** to **statewide problems** that **impede** the **improvement of health** and efficient and effective delivery of healthcare for **all North Carolina citizens.**
- To serve an **advisory function** at the request of the Governor, the **General Assembly**, and/or agencies of state government, and to **assist in the formation of public policy** on complex and **interrelated issues concerning health** and healthcare for the **people of North Carolina.**



The Foundation has been laid... All Things are READY!

- The RISKS have been taken.
- The PROGRAM has been developed.
- The DATA is there to support decision-making.
- KEY FUNDERS are at the table.
- ECU is COMMITTED to the expansion of MATCH in NC.
- We need policy-makers to support MATCH and **Strongly Support** implementation through our schools!

MATCH Supporters





For More Info on **MATCH**

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