

# OBESITY PREVENTION: LET'S START AT THE VERY BEGINNING

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DIABESITY Conference

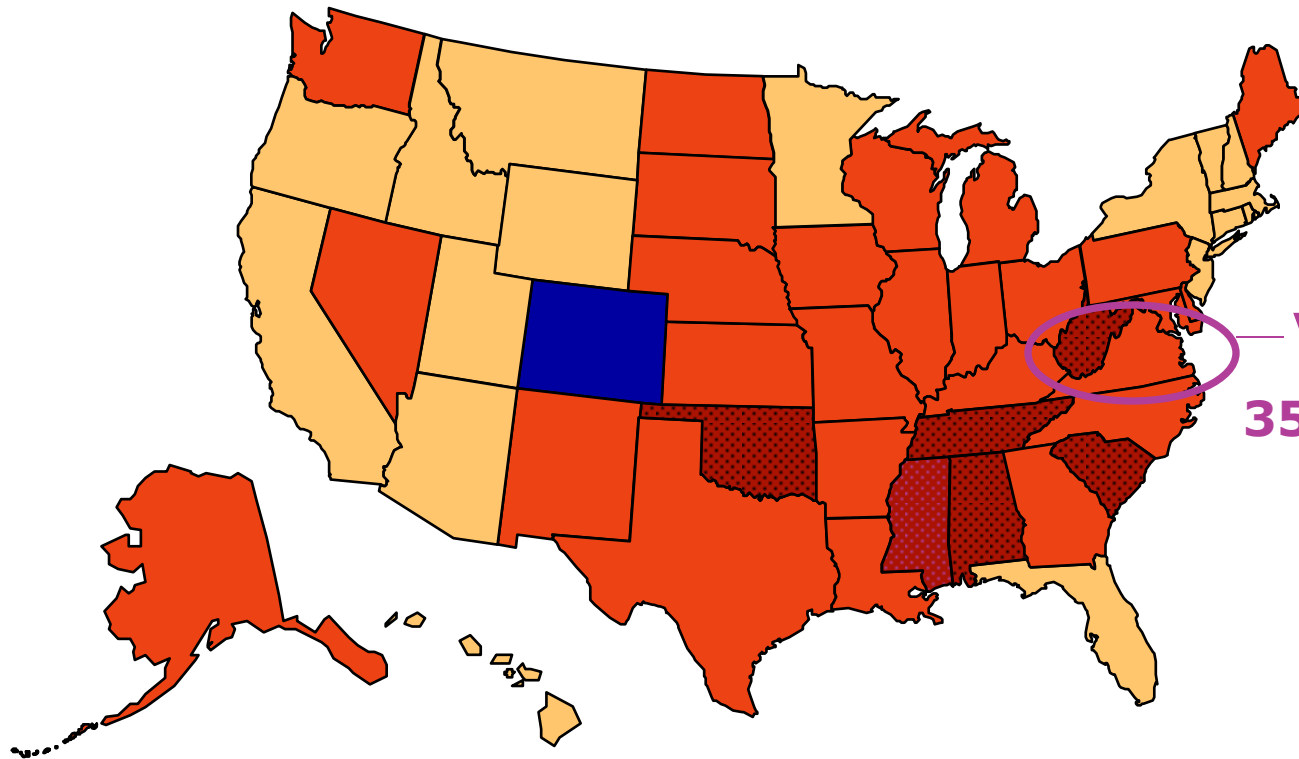
Obici Foundation

11<sup>th</sup> March 2011

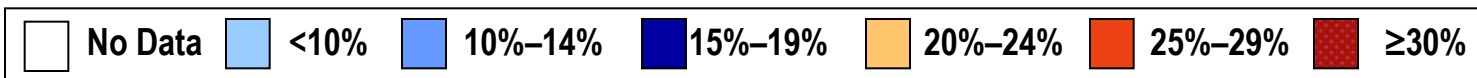


# OBESITY TRENDS\* AMONG U.S. ADULTS

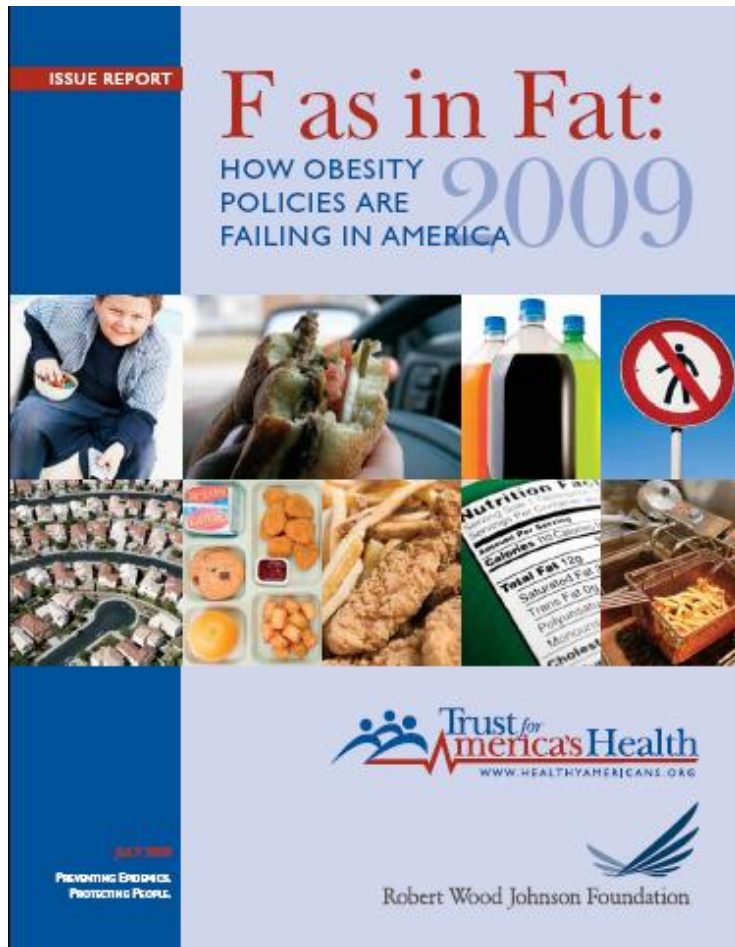
## BRFSS, 2008



— Virginia:  
35.8 % overweight  
25.7 % obese

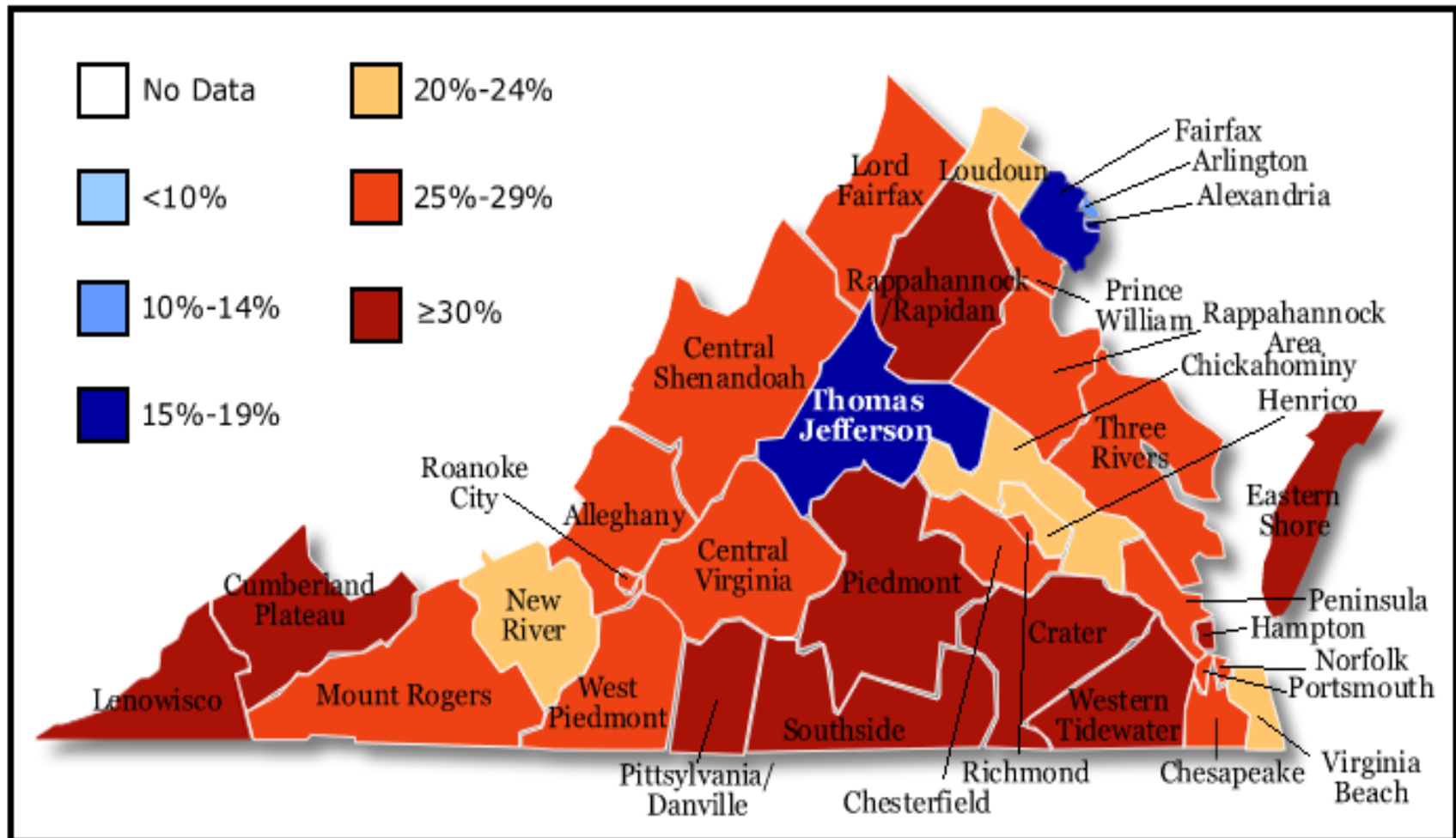


# VIRGINIA'S RANK



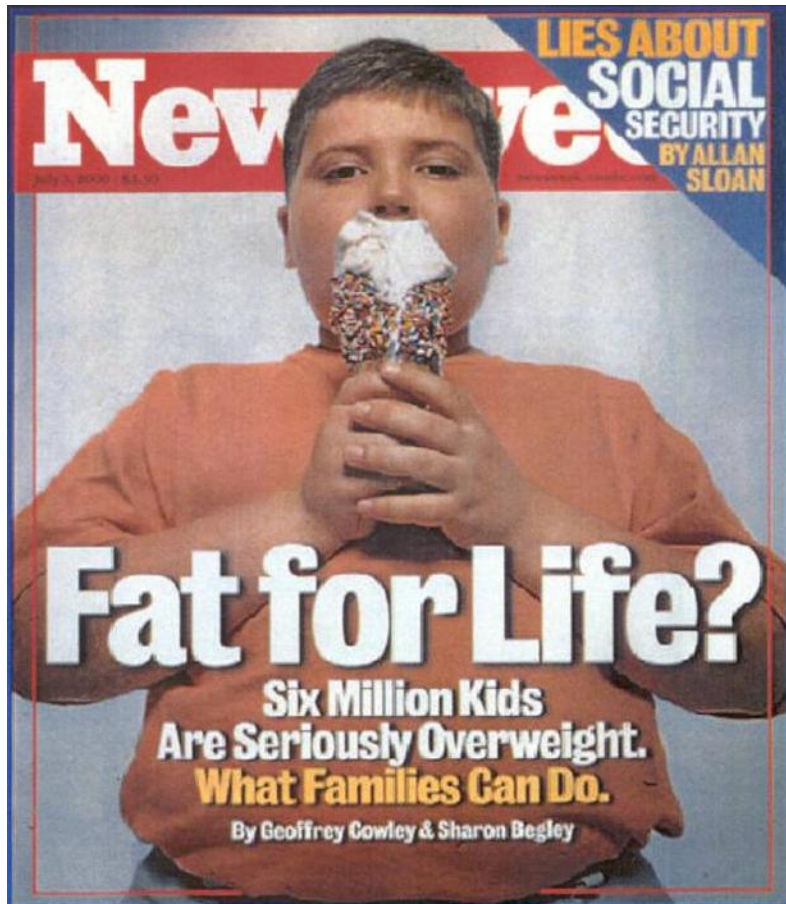
- 28th highest rate of adult obesity in the nation
- Tied with Oregon and Washington
- Mississippi ranks 1<sup>st</sup>; Colorado ranks 51<sup>st</sup>

# Obesity Prevalence among Virginia Adults aged $\geq 18$ years, by Health District.



Centers for Disease Control and Prevention (CDC) Behavioral Risk Factor Surveillance System, United States, 2007

# OBESITY TRENDS AMONG CHILDREN AND YOUTH



- Obesity is associated with significant health problems in the pediatric age group and is an early risk factor for adult morbidity and mortality.
- Obesity rates among children have risen significantly in the last two decades.
- 16 percent of the nation's children and adolescents ages 6-19 are overweight, NHANES



# STUDY AT EVMS

- ◉ **Identifying the “Tipping Point” Age for Overweight Pediatric Patients**
- ◉ John W. Harrington MD, Vu Q. Nguyen, James F. Paulson PhD, Ruth Garland, Lawrence, Pasquinelli MD, Donald Lewis MD
- ◉ Over 250 charts reviewed in 2 practices of children who were overweight or obese.

# FINDINGS

- Over half the children in study became overweight before age 2.
- All patients were obese or overweight by age 10
- Critical period for preventing childhood obesity in this subset of identified patients is **during the first 2 years of life** and for many by 3 months of age.

- ◉ To affect obesity, we must intervene EARLIER!!
- ◉ BUT what can we do?







**BREASTFEEDING**

It Rocks!

# CURRENT RECOMMENDATIONS

- ◉ Exclusive breastfeeding for the first 6 months of life
- ◉ Continued breastfeeding with complementary foods for at least 12 months or more (WHO, AAP, ACOG, ADA)



# BENEFITS...

## ○ Community

- Annual health care cost
  - Save \$13 billion/year
  - 90% babies exc BF for 6 months
- WIC formula costs
  - \$1.2 billion/year
  - If BF rates increased 10%, savings of \$408,000/year
- Environmental waste
- Employment
  - Decreased absenteeism
  - Decreased child illness
  - Increased productivity

# RISKS OF NOT BREASTFEEDING

- ◉ Increased risk of obesity
- ◉ Increased risk of diabetes
- ◉ MOM: Reduced risk of Type 2 Diabetes
- ◉ Less than perfect nutrition
- ◉ More heart disease
- ◉ Higher blood pressure
- ◉ Increased risk of MS
- ◉ Increased risk of childhood cancers/diseases
- ◉ Increased risk of SIDS
- ◉ More colic
- ◉ More colds, coughs
- ◉ More ear infections
- ◉ More diarrhea
- ◉ More constipation
- ◉ More allergies

# WHERE ARE WE?

	% ever BF	At 6 months	At 1 year	Exclusive 3 months	Exclusive 6 months
US National	74.2%	43.1%	21.4%	31.5%	11.9%
Virginia	<b>75.8%</b>	42.7%	18.7%	33.8%	14.3%
HP 2010 Goal	75%	50%	25%	40%	17%

Source: Centers for Disease Control and Prevention. Provisional Data - National Immunization Survey, 2005 Births. August 2008. [http://www.cdc.gov/breastfeeding/data/NIS\\_data/index.htm](http://www.cdc.gov/breastfeeding/data/NIS_data/index.htm)

# DURATION & EXCLUSIVITY

- ◉ Exclusively BF for 6 months - lower incidence of childhood obesity & BMI
- ◉ Inverse relationship b/w duration of BF and risk of childhood obesity
- ◉ Formula feeding and non-exclusive BF may be contributing to the obesity epidemic among American children
- ◉ BF > 6 months + exclusive BF = ↓ in obesity risk
- ◉ Each month of BF = 4% decrease in risk of obesity



# POSSIBLE MECHANISMS

- Behavioral
- Hormonal
- Differences in  
Macronutrient  
(Protein) Intake
- Parental  
Attributes/Family  
Environment
- Growth  
Acceleration



# BEHAVIORAL

- ⦿ BF babies control the amount of breast milk intake = learn to self-regulate better vs. bottle fed babies
- ⦿ Bottle feeding increased risk for obesity
  - ↑ protein in formula may stimulate insulin



# HORMONAL

- ◉ Metabolic Programming - bioactive nutrients in breast milk affect growth
- ◉ Formula-feeding promotes greater insulin response
- ◉ Greater body fatness during infancy ‘programs’ the body to be less sensitive to leptin later in life (resistance)
- ◉ Australian study:
  - Breastmilk contains hormones that regulate appetite
  - Regulate energy intake
  - Role of stem cells in breastmilk

# MACRONUTRIENT INTAKE

- ⦿ High protein intake early in life contributes to obesity
- ⦿ Higher protein in infancy has been shown to stimulate insulin release & secretion of IGF-1 (stimulates multiplication of fat cells)
- ⦿ Higher protein intake = 'programming effect' on glucose metabolism

# PARENTAL ATTRIBUTES & FAMILY ENVIRONMENT

- ◉ Women are likely older and more highly educated (CDC)
- ◉ Women who BF adapt healthier lifestyle habits & physical activity
- ◉ Cultural differences in exclusivity, duration of breastfeeding and introduction of solid foods

# GROWTH ACCELERATION

- ◉ Formula-fed consume larger volumes & gain weight faster
- ◉ Accelerated growth (1<sup>st</sup> 2 weeks)
  - Metabolic syndrome
  - ‘Program’ obesity may program several components of the metabolic syndrome
- ◉ 20% of risk of obesity by age 7 attributed to weight gain in the first 4 months
- ◉ ↑ in time breastfeeding, ↓ BMI



# WARNING SIGNS FOR OVERFEEDING

- ⊙ Rapid weight gain in infant
  - Crossing 2 percentiles%
- ⊙ Weight outpacing height
- ⊙ Must watch for infant cues of being full
  - Head turning
  - Regurgitant
  - Paced feeding
  - Tongue thrust
  - Drool feeding
- ⊙ Bottle propping
- ⊙ Early introduction of solid foods
  - Introduction of solids after 6 months shows correlation with lower BMI

# LET'S MOVE



# SURGEON GENERAL

- ◉ *Call to Action to Support Breastfeeding*
- ◉ January 2011
- ◉ Address and Reduce barriers to breastfeeding
- ◉ Hospital policies
- ◉ Post-partum/Lack of follow-up
- ◉ Training of medical providers
- ◉ Formula companies
- ◉ Societal
- ◉ Familial
- ◉ Cultural
- ◉ Media
- ◉ Employment

# CONCLUSIONS

- ◉ Obesity prevention starts before pregnancy
- ◉ Breast feeding needs to be supported by MDS-Obs and Pediatricians!
- ◉ Breastfeeding support in the workplace
- ◉ Parents need to let child regulate intake early
- ◉ Training of early satiety cues
- ◉ Measure BMI
- ◉ Promote healthy diets through education

# NATURAL~



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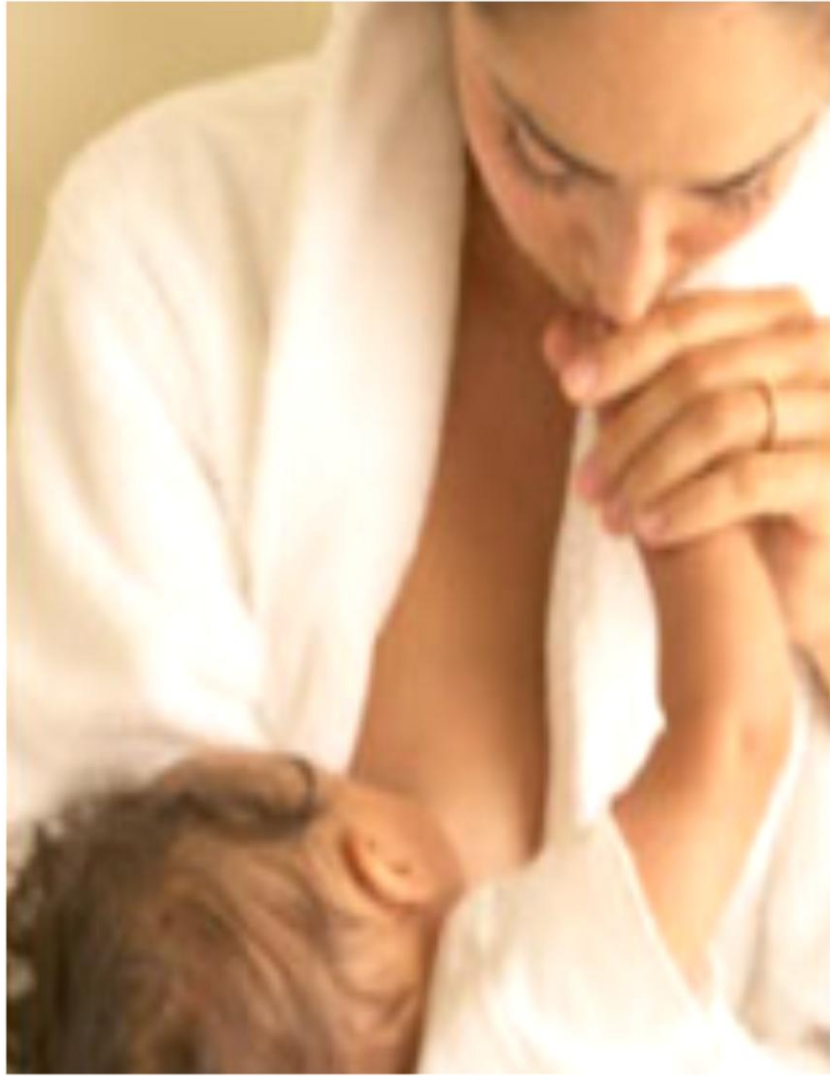
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**THANK YOU!!**

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