

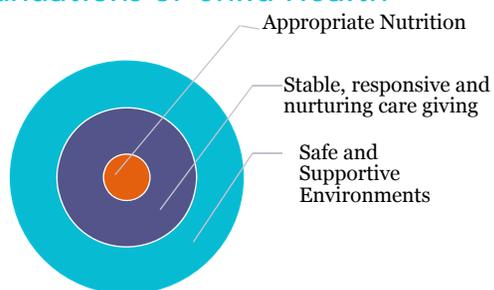
Building the Foundations of Child Health: Addressing the Triple Threat of Obesity, Food Insecurity and Hunger

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 President American Academy of Pediatrics

Objectives

- Understand factors contributing to childhood obesity and food insecurity and their effect on child health
- Understand the role of health professionals, health systems and community in advocacy
- Understand how developing shared values leads toward collective impact and action
- Mobilize the pediatric health professional community to a convergence of thinking and action to improve child nutrition

Foundations of Child Health



Children's Nutritional Needs

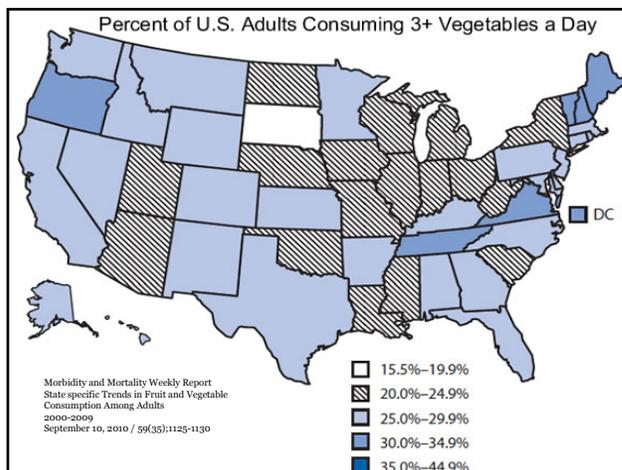
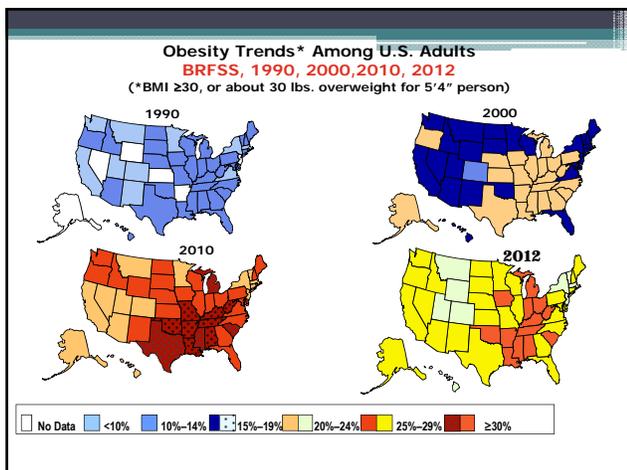
- **“an adequate diet for children...one that contains an appropriate density of nutrients, is sufficiently diverse that it supplies adequate but not excessive amounts of nutrition, is palatable and culturally acceptable, affordable and available year round and overall supports normal growth and development.”**

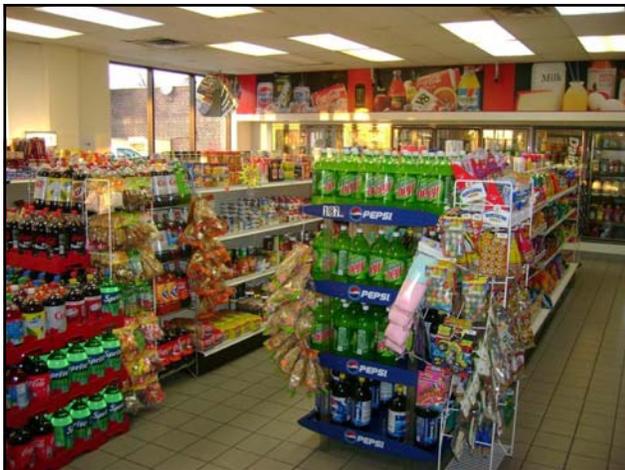
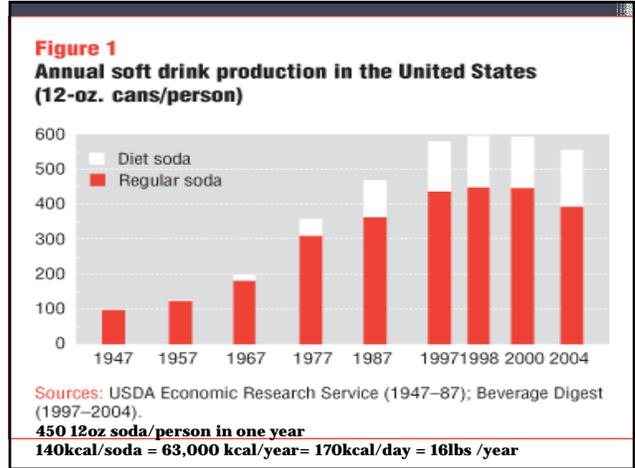
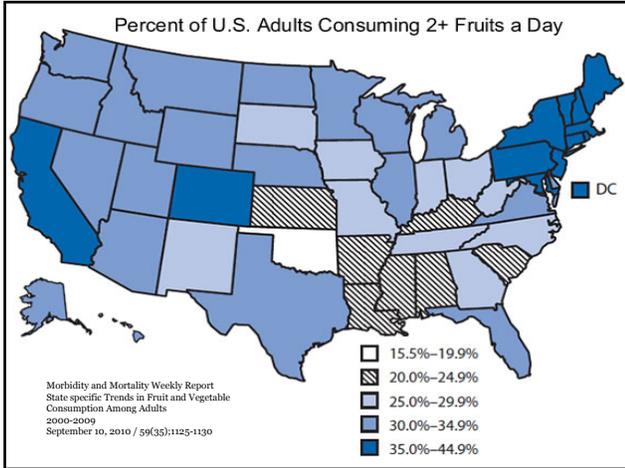
• Allen L. Causes of Nutrition Related Public Health Problems of Children : Available Diet J Ped Gastr Nutr 2006 43 S8-S12

Double Burden

- Obesity and undernutrition have been seen as separate and sometime opposing entities.
- However these two conditions coexist globally, nationally and locally and even within families and individuals
- The dual burden of under and overnutrition occurring simultaneously within a population is referred to as the double burden of malnutrition .
 - Chopra, M. From apartheid to globalization: Health and social change in South Africa. *HygieaInternationalis*, 2004.4(1): 153–174.

Obesity





new extra value menu™

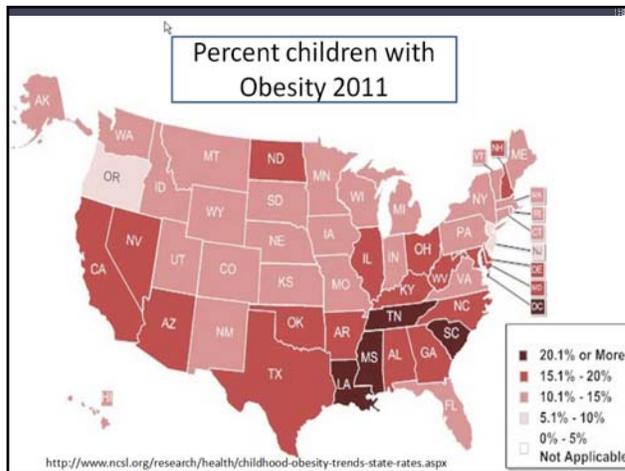
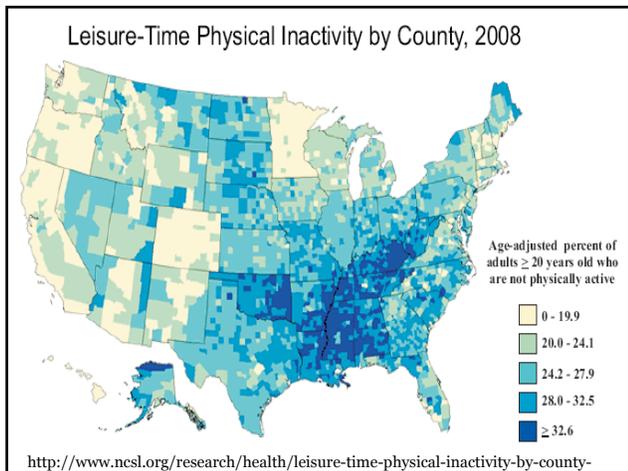
Try it today!

FOOD - EXIT 59

BURGER KING | TACO BELL | SUBWAY
McDonald's | Kentucky Fried Chicken | Wendy's

\$10 ANY PIZZA CARRYOUT
ANY SIZE AND ANY TOPPINGS
CARRYOUT NOW

more for \$4
Upgrade any of our 5 NEW burgers with a fountain drink and 3 scoop 2 topping sundae for just \$4 more!



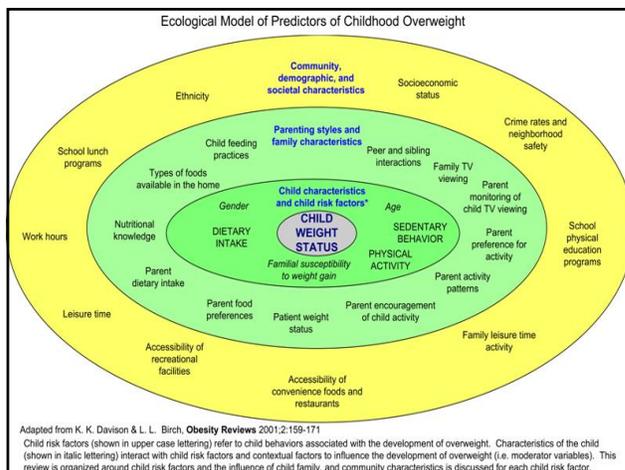
INSTITUTE FOR HEALTHY CHILDHOOD WEIGHT

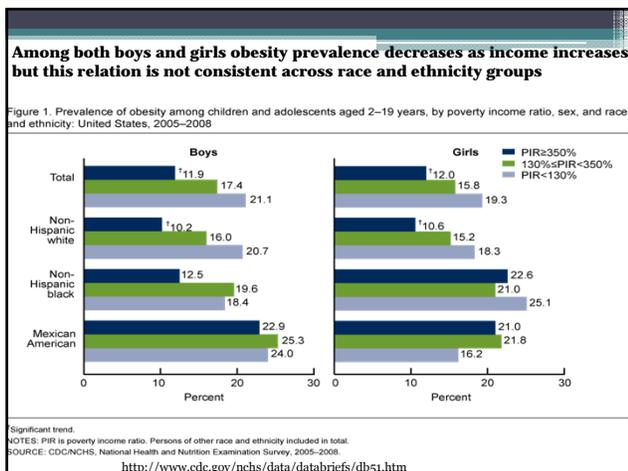
Health Consequences of Childhood Obesity

Burden of non communicable disease

Obesity related comorbidities

- Type 2 diabetes
- Hypertension
- Nonalcoholic fatty liver disease
- Dyslipidemia
- Upper Airway Obstruction
- Sleep Apnea Syndrome
- Blount's Disease
- Polycystic ovary syndrome
- Obesity related emergencies
- Depression/anxiety



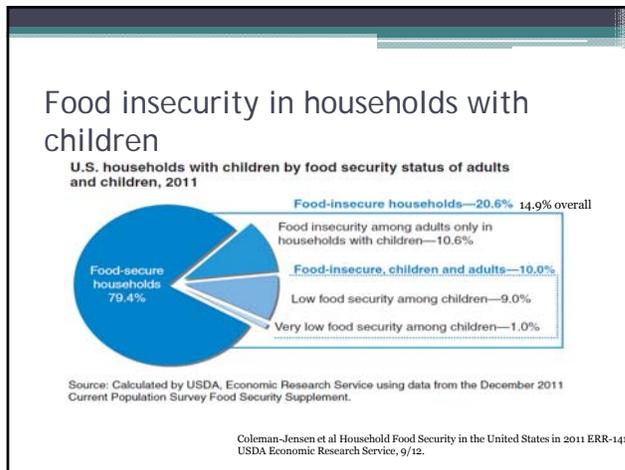
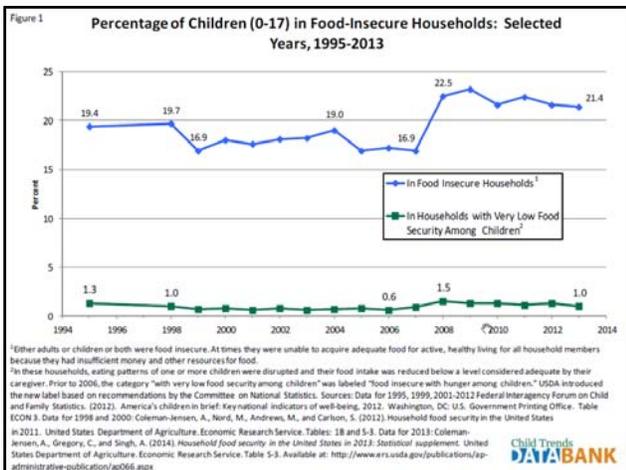
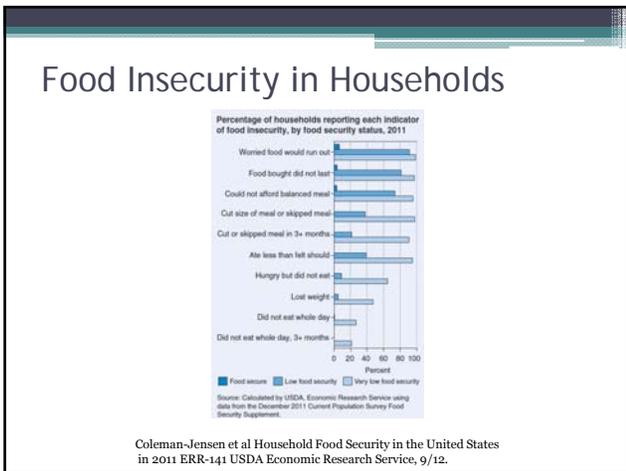


Food Insecurity

- "the limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways."
- "Very low food security," the most severe level measured by the survey, is characterized by irregular meals and inadequate food intake, as determined by caregivers
 - U.S. Department of Agriculture
<http://www.childtrends.org/?indicators=food-insecurity#sthash.VX12ws3z.dpuf>

Food Insecurity

- 2013, 21% (> 1 in 5) U.S. children lived in households that were food-insecure at some point during the year
- 1% experienced the most severe level of need, where food intake is reduced and regular eating patterns are disrupted
 - <http://www.childtrends.org/?indicators=food-insecurity#sthash.VX12ws3z.dpuf>

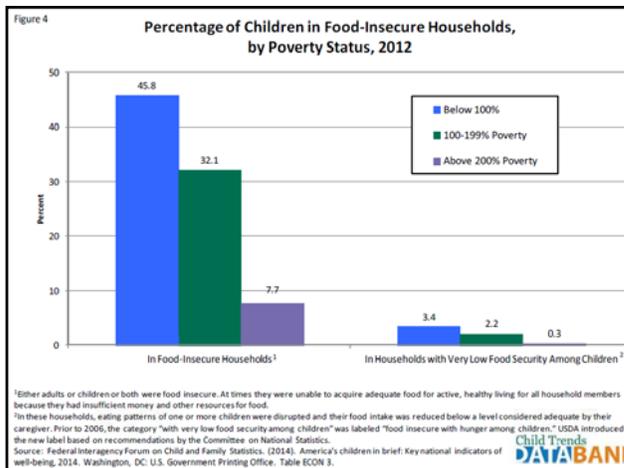
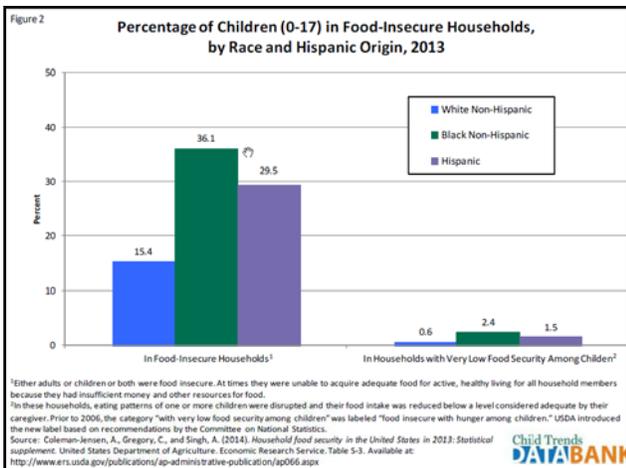


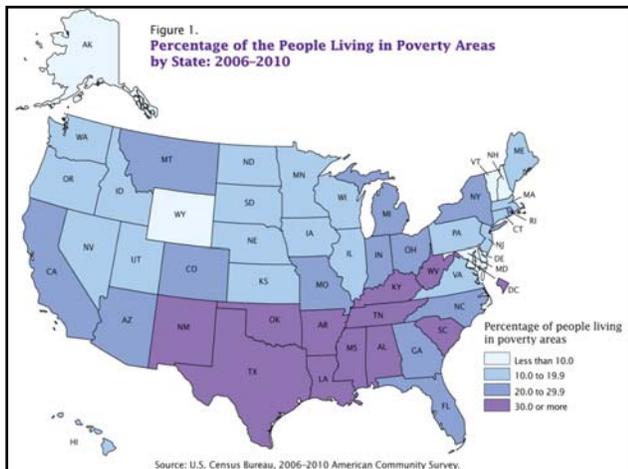
Households with higher rates of food insecurity

- Households with children (20.6%)
 - Households with children under 6 yr (21.9%)
 - Incomes near or below poverty line
 - Headed by single women (36.9%) or single man (24.9%)
 - Black (25.9%) or Hispanic (26.2%) households
 - Households with incomes <185% poverty (34.5%)
 - Large cities (17.7%) and rural areas (15.4%)
 - Only 57% participated in SNAP, WIC, School lunch
 - Most food insecure households had very low food security several days each month for 7 mo/year
 - Food secure households spent 24% more for food(including SNAP)
- Coleman-Jensen et al Household Food Security in the United States in 2011 ERR-141 USDA Economic Research Service, 9/12.

Child Health and Food Insecurity

- Parent reported poorer health and developmental risk
 - More frequent stomach aches, headaches, colds, hospitalizations, anemia and chronic conditions
 - More anxiety, depression, school difficulties
 - Nord M. Food insecurity in households with children: Prevalence, severity, and household characteristics. 2009 USDA, Economic Research Service www.ers.usda.gov/Publications/ERR56/
 - More difficulty with interpersonal skills, self control, attentiveness, flexibility and persistence
 - Howard LL. Does food insecurity at home affect non cognitive performance at school? A longitudinal analysis of elementary school classroom behavior. 2010 Economics of Education Review 20, 157-176
- Infants more likely to have insecure attachments and perform more poorly on cognitive assessments
 - Zaslow M et al Food security during infancy: Implications for attachment and mental proficiency in toddlerhood. 2009 Maternal and Child Health Journal 13(1) 66-80





Participation in Federal food programs

Participation of food-insecure households in selected Federal food and nutrition assistance programs, 2011

Program	Share of food-insecure households that participated in the program during the previous 30 days ^{1,2}	Share of households with very low food security that participated in the program during the previous 30 days ^{1,2}
	Percent	
SNAP ³	40.1	42.5
Free or reduced-price school lunch	32.2	26.5
WIC ⁴	11.2	8.6
Any of the three programs	57.2	56.0
None of the three programs	42.8	44.0

Coleman-Jensen et al Household Food Security in the United States in 2011. ERR-141 USDA Economic Research Service, 9/12.

49 MILLION INDIVIDUALS ARE FOOD INSECURE
16 MILLION OF THEM ARE CHILDREN
3,143 COUNTIES IN THE UNITED STATES

The Cost of Hunger

Annual cost burden of hunger in the US \$167.5 billion.

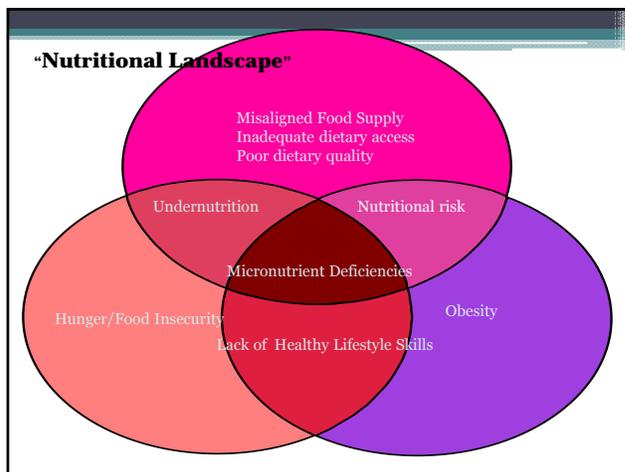
Costs associated with charity, chronic illness, psychosocial dysfunction, diminished learning and economic productivity

FOOD-INSECURE INDIVIDUALS CONSUME IN ADDITION TO WHAT IS RECOMMENDED:
\$2.26 PER PERSON PER DAY
 THAT'S \$15.82 PER WEEK
 OR \$68.74 PER MONTH

INCREASE FOOD INSECURITY DECREASES INCREASES

Shepard D et al Hunger in America Suffering we all pay for
 2011www.americanprogress.org/wpcontent/uploads/issues/2011/10/pdf/hungerpaper.pdf

<http://www.feedingamerica.org/hunger-in-america/our-research/map-the-meal-gap/2012/mathmealgap-exec-summary.pdf>



Food Insecurity and Obesity

- Today, however, the picture of food insecurity is increasingly an overweight or obese child consuming a poor-quality diet
- Highest rates of obesity are found in people with the lowest incomes
 - Among poor populations, 7 times as many children have obesity as are underweight
 - Coleman-Jensen A, Nord M, Andrews M, Carlson S. *Household Food Security in the United States in 2011*. Washington, DC: US Dept of Agriculture; September 2012. Economic Research Service report ERR-141. <http://www.ers.usda.gov/media/89433/err141.pdf>
- The challenge for low-income families in today's modern food environment is not obtaining enough food, but rather having dependable access to high-quality food
 - An estimated 16.7 million youth younger than 18 years do not consistently know when, or how adequate, their next meal will be
 - Kirsanik M, Weitzman M. Recent findings concerning childhood food insecurity. *Curr Opin Clin Nutr Metab Care*. 2009;12(3):310-316. [PubMed](#) | [Link to Article](#)

Coexistence of Food insecurity and obesity

Food insecure and low-income people are especially vulnerable to obesity due to the additional risk factors associated with poverty, including:

- Limited resources
- Lack of access to healthy, affordable foods
- Fewer opportunities for physical activity
- Cycles of food deprivation and overeating
- High levels of stress
- Greater exposure to marketing of obesity-promoting products
- Limited access to health care

frac_brief_understanding_the_connections.pdf

Limited Resources and Lack of Access to Healthy Affordable Foods

- Lack of full service grocery stores and farmer's markets
 - Reliance on corner/convenience stores
- Greater density of fast food
 - Larson N et al Neighborhood environments, disparities in access to healthy foods in the US 2009 *Am J Prev Med* 36(1) 74-81
- Cost differential between healthy (nutrient dense) and unhealthy food (energy dense/nutrient poor)
- Poorer quality healthy food
 - Andreyeva T et al Availability and prices of foods across neighborhoods The case of New Haven CN 2008 *Health Affairs* 27(5) 1381-1388

Fewer Opportunities for Physical Activity

- Fewer parks, green spaces, bike paths, and recreational facilities
 - Gordon-Larson P, et al Inequalities in the built environment underlies key health disparities in physical activity and obesity 2006 *Pediatrics* 117(2) 417-424
- Crime, traffic and unsafe play spaces
 - Gordon-Larson P et al Barriers to physical activity, qualitative data on caregivers perspective and practice *Am J Prev Med* 27(3) 218-223
- Expense and transportation to participate in sports
 - Duke J et al Physical activity levels among children 9-13 years United States 2002 *MMWR* 52(33) 785-788
- Low income students spend less time being active in PE and have less recess
 - Barros R et al School recess and group classroom behavior 2009 *Pediatrics* 123(2) 431-436

Cycles of Food Deprivation and Overeating

- **Metabolic consequences of cycles of over and under consumption**
 - Alaimo K et al Low family income and food insufficiency in relation to overweight in U S Children is there a paradox? 2001 Arch Ped Adol Med 155(10):1161-1167
 - Dietz W Does hunger cause obesity? Pediatric 95(5) 766-767
- **Maternal food restriction leading to obesity**
 - McIntyre L et al Do Low income mothers compromise their nutrition to feed their children? 2003 Canadian Med Assoc J 168. 686-691

High Levels of Stress

- **Financial and emotional stress**
 - **Food insecurity, low wage work, difficulty paying bills, inadequate and long distance transportation, neighborhood violence**
 - Block JP et al Psychological stress and change in weight among US adults 2009 Am J Epid 170 (2) 181-192

Greater Exposure to Obesity Promoting Products

- **Fast food, sugary beverages, television shows, video games**
 - Kumanyika S et al Targeting interventions for low income and ethnic populations 2006 Future of Children 16(1) 187-207

Strategies to improve nutrition

Correcting Basic Undernutrition

- Education
- Dietary modification
- Food provision
- Supplementation and fortification
- Consensus needs to be built around approaches to scale up coverage and delivery strategies to reduce disparities and provide equitable access.
- Strategies to address food insecurity and poverty alleviation are key

◦ Bhutta ZA, Salam RA, Das JK. Meeting the challenges of micronutrient malnutrition in the developing world. Br Med Bull. 2013;106:7-17

Obesity prevention and Treatment

- Adult and child health education
- Family Systems change
- Lifestyle modification
- Interaction with clinical care
- Access to healthy affordable food
- Opportunity and access to physical activity

Neighborhoods

Correcting Basic Undernutrition

- Improve transportation to healthy food sources
- Decrease unhealthy food options
- Lower cost of healthy foods
- Alter existing shopping patterns

• Sadler et al Int J Env Res Pub Health
2013 Aug 10(8) 3325-2246

Obesity prevention and treatment

- Ability to walk to school
- Child friendly neighborhoods
- Neighborhood culture (active or inactive)
- Faith based initiatives
- Access to health care providers and services

Employers/Workplace

Correcting Basic Undernutrition

- Increase income eligibility for food assistance programs
- Increase adult full time employment
- Increase eligibility for households with disabled adult
- Increase high school completion for adults in household

• <http://www.ers.usda.gov/media/1120651/eib-113.pdf>

Obesity prevention and treatment

- Health benefits
- Wellness programs
- Healthier work environments
- Activity opportunities
- Marketing of healthier choices

Schools and Childcare

Correcting Basic Undernutrition

- Increase participation in school lunch program
- Increase breakfast in class
- Increase nutritional quality of after school snack
- Consider alternate venues for summer feeding programs
- Identify infants with undernutrition

Obesity prevention and treatment

- Vending machine snacks and beverages
- School meals
- Physical education
- Fund raising
- Health education
- Built environment
- Time constraints

Community Level

- “Built environment”, parks, playgrounds, sidewalks, safety
- Availability of community and activity nutrition and activity resources
 - Food banks, fresh produce, Boys and Girls Club, YMCA, community sports
- Employer support for nutrition and activity
- Community group educational and program efforts

Population Level

- State and National policy
 - Healthy Hunger Free Kids Act
 - WIC
 - SNAP
 - Head Start

Obesity in Primary Care

- Calculate and classify BMI
- Screen for obesity related comorbidities
- Focus on stepwise family based change for children with obesity
- Prevention 5210
- Focus on early feeding and activity
- Foster parenting skills

Food insecurity in primary care

- Know your communities resources for food, housing, literacy, early education etc.
- Ask about food insecurity
 - “Within the past 12 months we worried whether our food would run out before we got money to buy more”
 - “Within the past 12 months the food we bought just didn’t last and we didn’t have money to get more.”
- Screen for key poverty related health conditions
 - asthma, obesity, dental caries, injuries, mental health diagnosis, HIV infections, and tobacco exposure etc.

◦ Hager E et al. Development and validity of a 2-item screen to identify families at risk for food
Pediatrics. 2010 Jul;126(1):e26-32. doi: 10.1542/peds.2009-3146

Families

- Understanding the families relationship with their environment at the population, community, workplace and school is part of putting the obesity puzzle together.
- ? How can we look at family function to enhance the work of obesity prevention, intervention and treatment?

Characteristics of Effective Health Care Systems

- Integration of information
- Measurement
- Interdependence of the care team
- Supportiveness of the larger system
- Constancy of purpose
- Connection to the community
- Alignment of role and training
- Investment in improvement

◦ Mohr J, Batalden PB Improving safety on the front lines: the role of clinical microsystems. *Quality Saf Health Care* 2002;11:45-50.

Integration of Information

- Basic information about healthy nutrition and activity that is:
 - Objective and general
 - Based on basic principles of nutrition and activity
 - Based on research/experience
 - Patient and family specific
 - Family report of diet and exercise
 - Family concerns re food insecurity
 - Family ability, confidence and desire to change
 - Developmentally appropriate
 - Culturally sensitive
 - Economically sound

Measurement

- Families need to understand growth measurement in children
 - Familiarity with growth charts
 - Understand BMI, what it means, what it defines
 - Understand the link between growth and behavior
- Be able to assess their families health related behavior

Interdependence of the care team

- The family is the fundamental unit of health care delivery
 - Family members need to understand **their** importance and the effect they have on the child's nutrition and activity
 - Understanding the family system is important in making change
 - There is a need to integrate and communicate between all who care for the child
 - Family, extended family, child care, school, after school, sports, activities

Supportiveness of the larger system

- Interaction with those who provide health care and health information
 - Medical Home
 - WIC
 - Public/School Health
- Interaction with those who provide nutrition and activity to child
 - Day care
 - School
 - Sport
- Interaction with those who can make change
 - Policy makers
 - Local food sources
 - School boards

Constancy of purpose

- **Goals for child need to be shared between family members**
 - Communication
 - Family dynamics
 - Realistic, doable goals
 - Role for health care provider in facilitating goal setting
 - Support during setbacks
- **Medical Goals**
- **Behavioral/lifestyle goals**
 - Values of family
 - Opportunities and motivation for change
 - Parenting skills
- **Goal Development**
 - Motivational Interview
 - Brief focused negotiation etc.

Connection to the community

- **Nutrition**
 - Food sources
 - Cooking skills
 - Understanding of school food programs
 - Restaurants
- **Activity**
 - Built environment
 - Activity opportunities
 - After school programs that emphasize participation

Alignment of role and training

- **Updating or learning parenting skills**
 - Empowering parents
 - Linking skills to developmental stage
 - Linking parenting skills to health messages
 - Teaching self assessment and improvement techniques
 - Health literacy
 - The ability to move nutrition and activity decisions into the arena of health decisions
 - The ability to understand how to use nutrition and activity information in daily decision making

Investment in improvement

- Families need to understand the partnership between health care, community services, schools and families
 - Bidirectional
 - Emphasizes dialogue
 - Families have an active role
- Be able to incorporate active learning and change into the family system

Collective Impact

Collective Impact Initiatives are long-term commitments by a group of important actors from different sectors to a common agenda for solving a specific social problem. Their actions are supported by a shared measurement system, mutually reinforcing activities, and ongoing communication, and are staffed by an independent backbone organization.

Collective impact initiatives involve a centralized infrastructure, a dedicated staff, and a structured process that leads to a common agenda, shared measurement, continuous communication, and mutually reinforcing activities among all participants

Stanford Social Innovation Review Collective Impact John Kania and Mark Kramer Winter 2011

Conditions of Success

- Common Agenda
 - All participants must have a common understanding of the problem and a joint approach to solving it through agreed upon actions i.e. must share primary goals
- Shared measurement system
- Mutually reinforcing activities
 - Each group does what it does best supporting and coordinated with others in the group
- Continuous communication
- Backbone support organization
- Highly structured decision making process
- Sustainable funding

Food Insecurity in Primary Care

- The Keeping Infants Nourished and Developing (KIND) program
 - Collaboration between the primary care network and the foodbank
 - The goal was to address FI in households with infants via provision of supplemental infant formula, tailored education, and connection to clinic and community resources or public benefit programs
- An on-site physician, social worker, and dietician collaborated to define KIND eligibility criteria.
- Families receiving KIND were significantly more likely to report risks relating to parental mental health, housing, benefits, and domestic violence, (highest-risk patients).
- KIND may have served as a “connector” between these high-risk households and primary care
 - Patients receiving KIND were more likely to have complete preventive services (eg, lead, developmental screening) and 5+ well-infant visits in the first 14 months, more likely to be linked to interventions poised to address multiple and potentially interrelated concerns (eg, social work)

¹ Forging a Pediatric Primary Care-Community Partnership to Support Food-Insecure Families Andrew F. Beck, Adrienne W. Henkin, Robert S. Kahn, Karl L. Robles, John J. Young, and Melissa D. Klein *Pediatrics* 2014; 134:2 e164 e172; published ahead of print July 21, 2014. doi:10.1542/peds.2013.2842

South Dakota's Local Foods Collaborative

- Extension provided the centralized infrastructure and dedicated staff, and a recent Rural Business Opportunities Grant from USDA provided a structured process with goals, measurement and communication shared by participants.
- Although each entity involved in the collaborative practices its own expertise and may work with different clients, the goal of obtaining excellence in South Dakota's local foods system is shared.
- Players have recognized that in order to move this initiative forward we need to share tools that lead to completed goals and measure our collective progress together
- <http://www.extension.org/pages/70627/using-collective-impact-to-build-a-local-foods-system/print/>

