Obesity Prevention – Setting the Stage for oral health interventions

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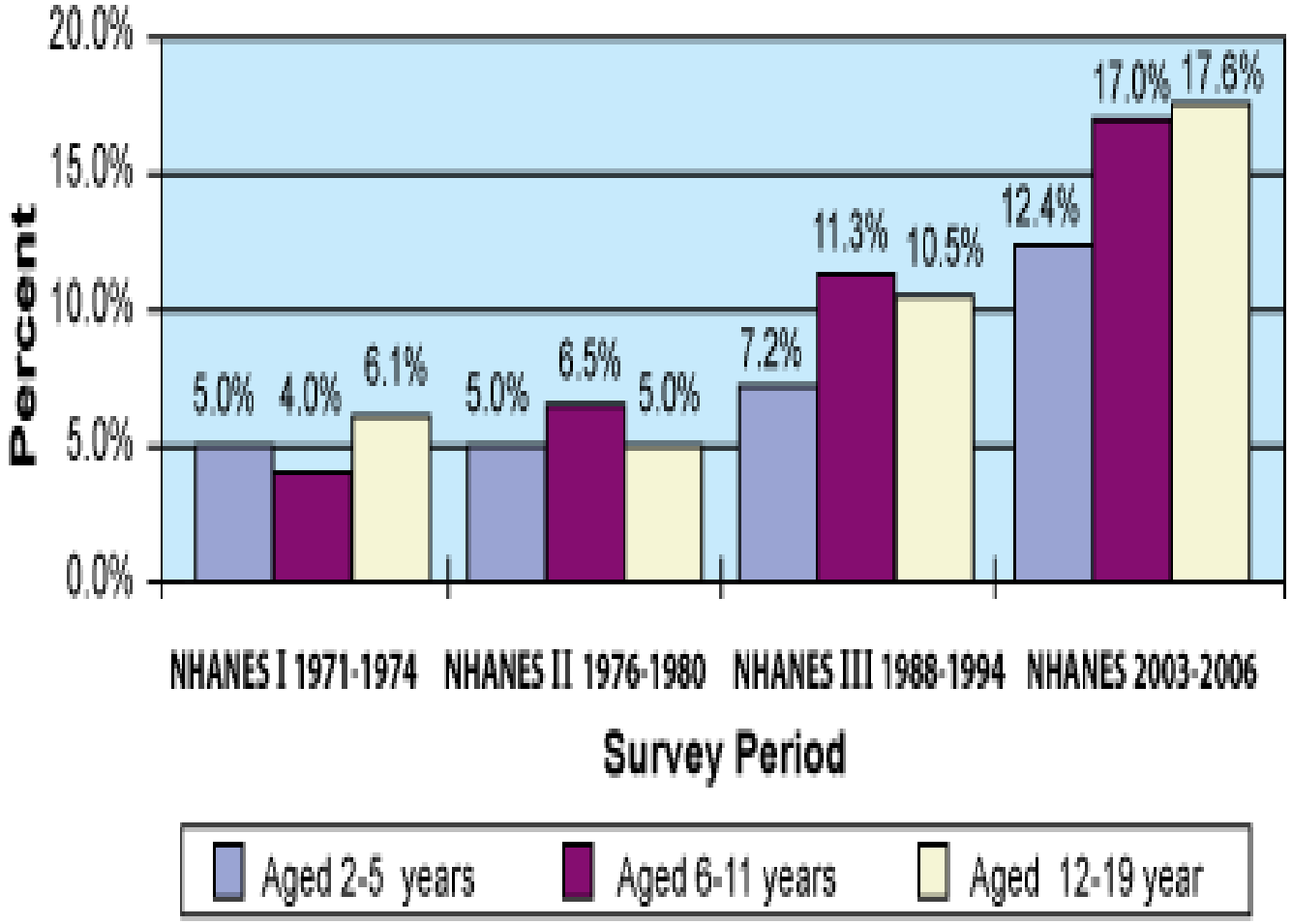
Overview of presentation

- Obesity overview
- Opportunities for intervention
- Behavior theories supportive of intervention

Prevalence of Obesity* Among U.S. Children and Adolescents (Aged 2 –19 Years) National Health and Nutrition Examination Surveys



The “Normalizing” of Overweight

Why healthy weight promotion

Long-Term Consequences of Obesity

- Overweight and obesity, are significantly associated with an increased risk of diabetes, high blood pressure, high cholesterol, asthma, arthritis, and poor health status.

Obesity Among Youth

- The prevalence of obesity among children aged 6–11 has more than doubled in the past 20 years and among adolescents aged 12–19 has more than tripled.

- Children and adolescents who are overweight are more likely to be overweight or obese as adults; one study showed that children who became obese by age 8 were more severely obese as adults.

- Early onset of obesity-related conditions are associated with increase severity of the condition in the long-term

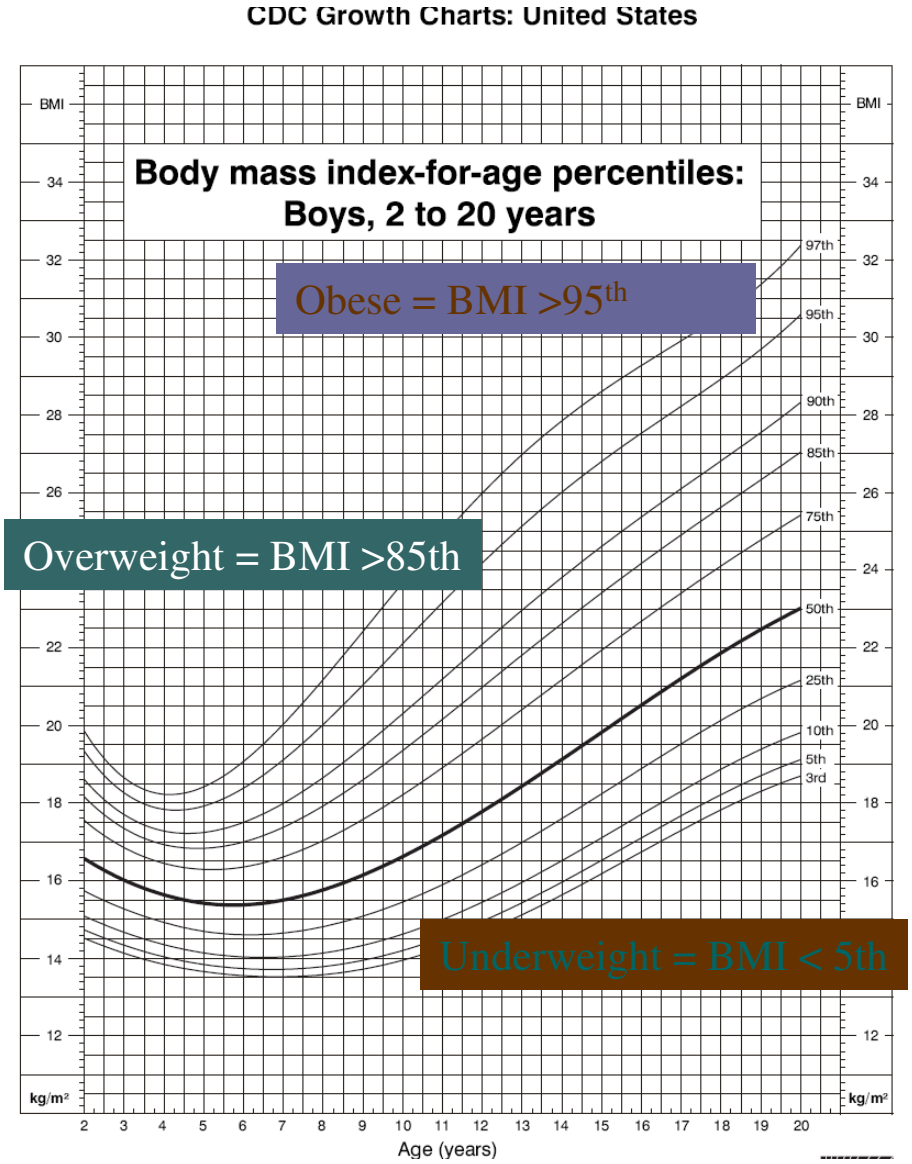
- Focus on prevention; early intervention; promoting healthy weight and healthy behaviors

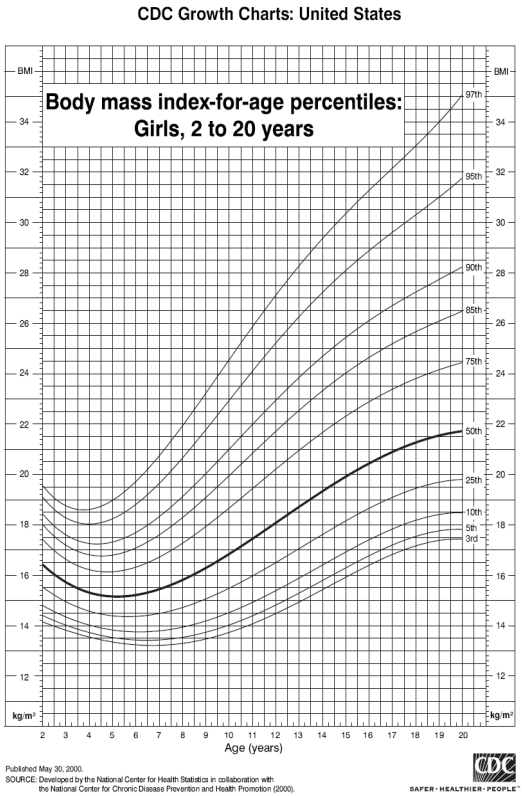
Identification: Definitions and Terminology

- Measurement of body fat
  - Body Mass Index (BMI)

    (weight (kg)/height ($m^{2)}$)
  - BMI Percentiles
- Cutoff points and terminology
  - New recommendations!
    - Older adolescents – BMI (adult classification)
    - Very young – wt-for-ht

CDC Growth charts Boys/Girls





Terminology for BMI Categories

BMI Category	Former Terminology	Recommended Terminology
<5th percentile	Underweight	Underweight
5th–84th percentile	Healthy weight	Healthy weight
85th–94th percentile	At risk of overweight[ab]	Overweight[c]
≥ 95th percentile	Overweight[ab] or obesity[a]	Obesity[cd]

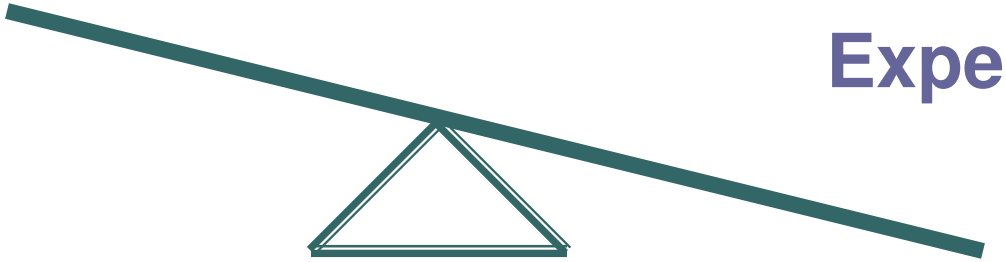
[a] Expert committee recommendations, 1998.[15]
[b] CDC recommendations, 2002.[2]
[c] International Obesity Task Force, 2000.[45]
[d] Institute of Medicine, 2005.[16]

Sarah E. Barlow, MD, MPH and the Expert Committee
PEDIATRICS Vol. 120 Supplement December 2007, pp. S164-S192 (doi:10.1542/peds.2007-2329C)

Energy Balance Equation Determinants of Obesity

↑ Energy Consumed

↓ Energy Expended



110-160 extra calories per day can result in 1 pound weight gain per year. 10 pounds in 10 years
1 can of soda = ~140 cal
Youth consuming ~ 300 cal from SSB per day

Socio-Ecological Model:
Spheres of influence

Individual's behavior

"Individual behaviors must be addressed in the context of societal and environmental influences"

- Economos, 2008

Antecedents of obesity epidemic

- ↑ Energy consumed:
  - Increased sugar-sweetened beverage consumption
  - Increased fast-food and food consumed away from home
  - Shifts in diet and eating patterns
- ↓ Energy expended:
  - Increase in TV and screen time
  - Decrease in Physical Education, walking to school, “free ranging”

How can we start to make a difference in addressing such a complex situation?

- Identify behavioral ***target(s)*** for obesity prevention based on research evidence
- Identify ***intervention methods*** based on behavioral change theory and research evidence

Evidence-based behavioral targets for healthy weight promotion:

- **Limit consumption of sugar-sweetened beverages**
- **Encourage fruits and vegetables**; the current recommendations from the US Department of Agriculture (USDA) (www.mypyramid.gov) are for 9 servings per day, with serving sizes varying with age
- **Limit television and other screen time** (the American Academy of Pediatrics recommends no television viewing before 2 years of age and thereafter no more than 2 hours of television viewing per day), by allowing a maximum of 2 hours of screen time per day (CE) and removing televisions and other screens from children's primary sleeping area
- **Eat breakfast daily**
- **Limit eating out at restaurants, particularly fast food restaurants** (frequent patronage of fast food restaurants may be a risk factor for obesity in children, and families should also limit meals at other kinds of restaurants that serve large portions of energy-dense foods);
- **Encourage family meals in which parents and children eat together** (family meals are associated with a higher-quality diet and with lower obesity prevalence, as well as with other psychosocial benefits)
- **Promote moderate to vigorous physical activity for at least 60 minutes each day**
- **Limit consumption of energy-dense foods.**

Barlow, PEDIATRICS Vol. 120 Supplement December 2007, pp. S164-S192 (doi:10.1542/peds.2007-2329C)

Sugar Sweetened Beverage (SSB) Consumption has increased dramatically

"Teens who consume SSBs, which include sodas, fruit drinks and punches, and sports drinks, drink an average of 356 calories per day, a significant increase from 10 years earlier"

Wang, et al.; Pediatrics, 2008

"For each additional serving of sugar-sweetened beverage consumed, both BMI (0.243 kg/m2; P=0.03), and incidence of obesity (odds ratio 1.60; P=0.02) increased."

Ludwig et al, Lancet 2001

Beverages and Student Health Pilot Study

Cambridge Rindge & Latin 2003-04

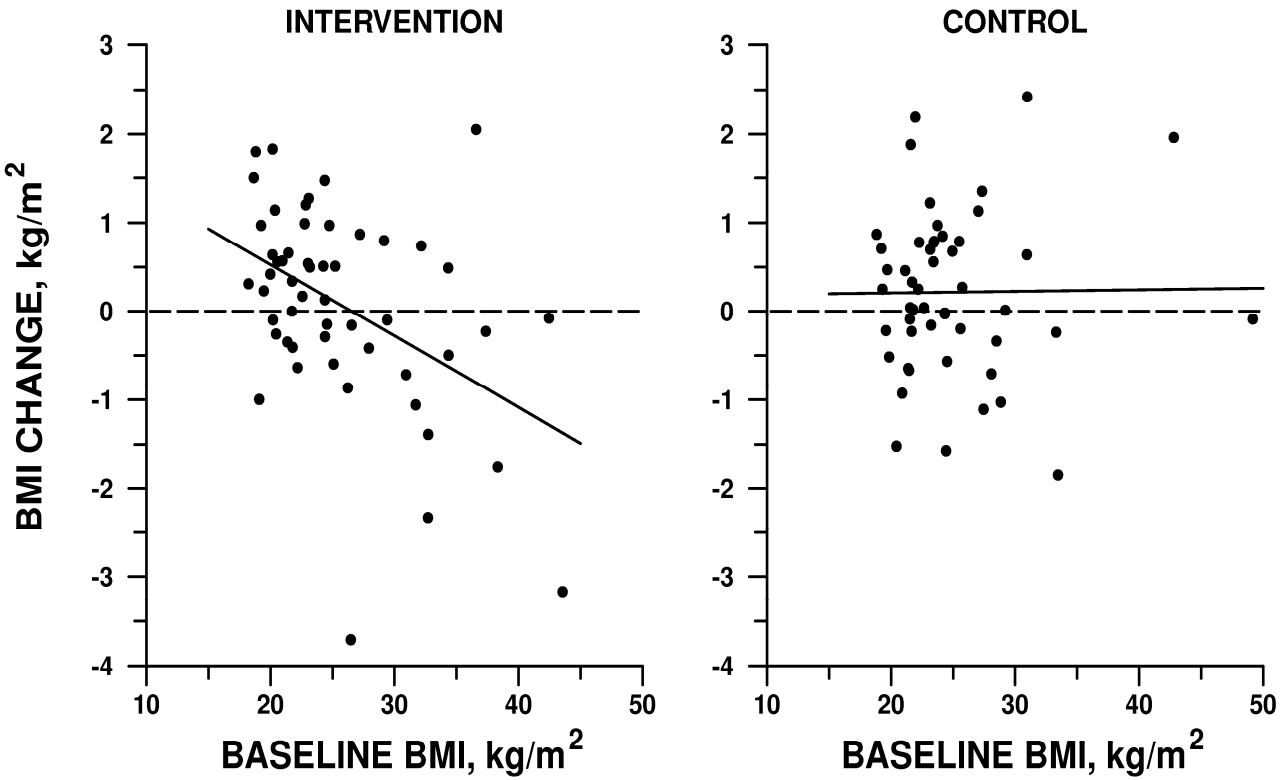


Figure C.3.1. Change over 25 weeks in BMI for Intervention and Control Groups, by Baseline BMI

Ludwig et al. 2005, Pediatrics

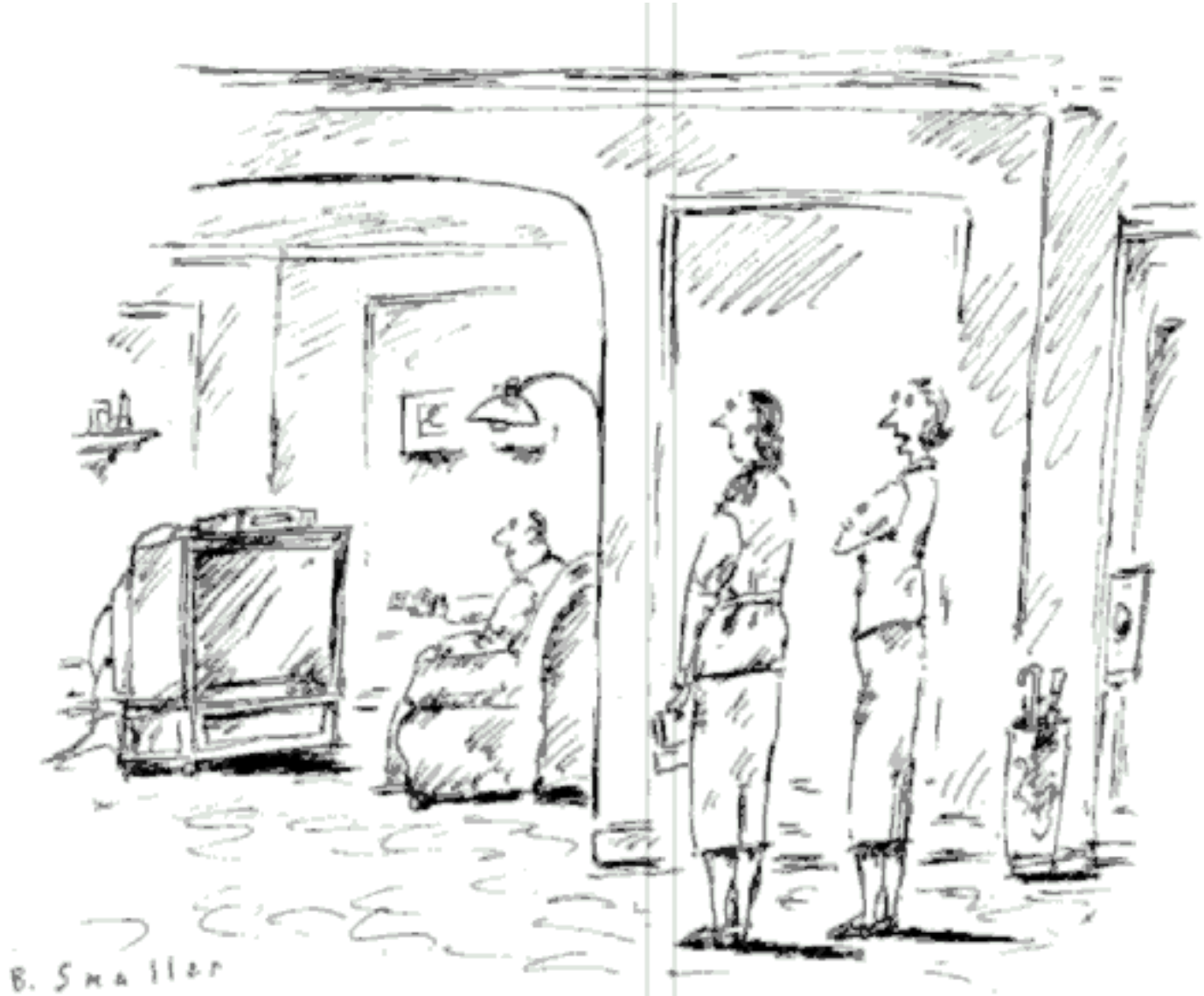
TV viewing (inactivity) has increased

- TV continues to increase in spite of growing competition from new media platforms and devices, such as video iPods, cell phones and streaming video
- Teens age 12-17 viewed 3% more than in the 2004-2005
- Younger children age 2-11 increasing their total day viewing levels by 4%.
- African American children age 2-11 and teen girls age 12-17 increased 10% and 9%, respectively, while viewing among Hispanic children and teenage girls increased 14% and 6%, respectively.

Average Time Tuned into Television Per 24-Hour Period

- 2005 - 2006 8:14 hours/minutes
- 2000 - 2001 7:39
- 1995 - 1996 7:15

http://www.nielsenmedia.com/nc/portal/site/Public/



"Every few years, Gordon and the TV get a couple of inches wider."

Participation in Physical Education Classes has declined

- About half (54%) of high school students attended physical education classes in 2005
- Percentage of high school students who attended physical education classes daily:
  - decreased from 42% in 1991 to 25% in 1995
- Only 8% of middle schools offer daily PE

CDC. Youth Risk Behavior Surveillance—United States, 2005 [pdf 300K]. *Morbidity & Mortality Weekly Report* 2006;55(SS-5):1–108.

What intervention methods and concepts should be considered based on behavior-change theory

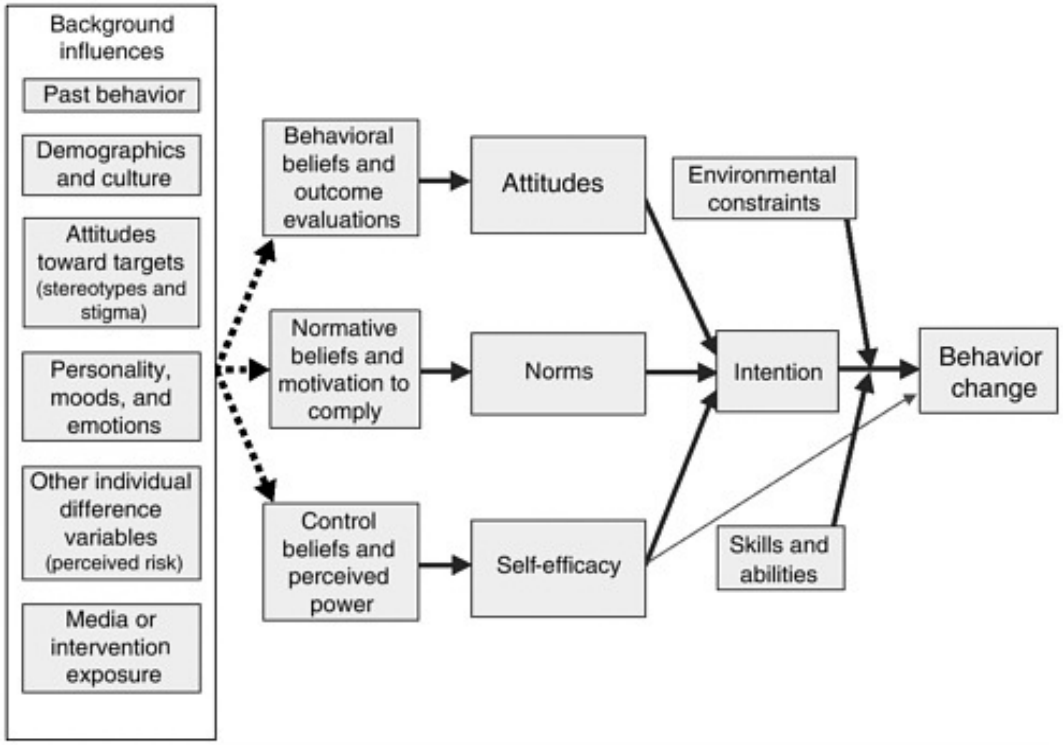
Stages of Change

- The stages of change theory describes several cognitive stages that precede actual behavior change.

Considerations from behavioral change theory

- **Knowledge – Attitudes – Behavior**
- **Social Cognitive Theory** (Bandura 1977) – Behavior change based on personal factors (knowlege, attitude, intentions) and environmental factors
- **Theory of Planned Behavior** (Izjen - 1991) and the **Integrative Behavioral Model** (2002) Fishbein and other theorists – behavior change also requires behavioral control or efficacy

Integrative Behavioral Model: Schema



Model Developed from the IOM meeting: included constructs from TRA/TBP, SCT & HBM

Integrative Behavioral Model predicts that….

Behavior is likely to occur when…

1. Strong intention AND knowledge and skills to carry out (confidence or self-efficacy)
2. No environmental constraints
3. Behavior is salient (importance - motivation)
4. Performed behavior previously (possibility for habitualization)

Assumption: constructs are determined by underlying beliefs

Obesity Prevention Protocol

- **Step 1. Assess**
  - Assess weight and height and convert to BMI
  - Provide BMI information
- **Step 2. Set agenda**
  - Query which, if any, of the target behaviors the parent/child/adolescent may be interested in changing or which might be easiest to change
- **Step 3. Assess motivation and confidence**
  - Assess willingness/importance
    - On a scale of 0 to 10, with 10 being very important,
    - how important is it for you to reduce the amount of fast food he eats?
  - Assess confidence
    - On a scale of 0 to 10, with 10 being very confident, assuming you decided to change the amount of fast food he eats,
    - how confident are you that you could succeed?
- **Step 4. Summarize and probe possible changes**
  - Query possible next steps
  - Summarize change plan; provide positive feedback
- **Step 5. Schedule follow-up visit**
  - Agree to follow-up visit within *x* weeks/months

Barlow, PEDIATRICS Vol. 120 Supplement December 2007, pp. S164-S192 (doi:10.1542/peds.2007-2329C)

Motivational interviewing –

- takes into account patients' readiness to change,
- uses nonjudgmental questions and reflective listening to uncover the beliefs and values of a parent or patient.
- clinician can evoke motivation, rather than try to impose it, and then help patients formulate a plan that is consistent with their own values.
- This approach avoids the defensiveness created by a more-directive style.

Socio-Ecological Model:
Spheres of influence

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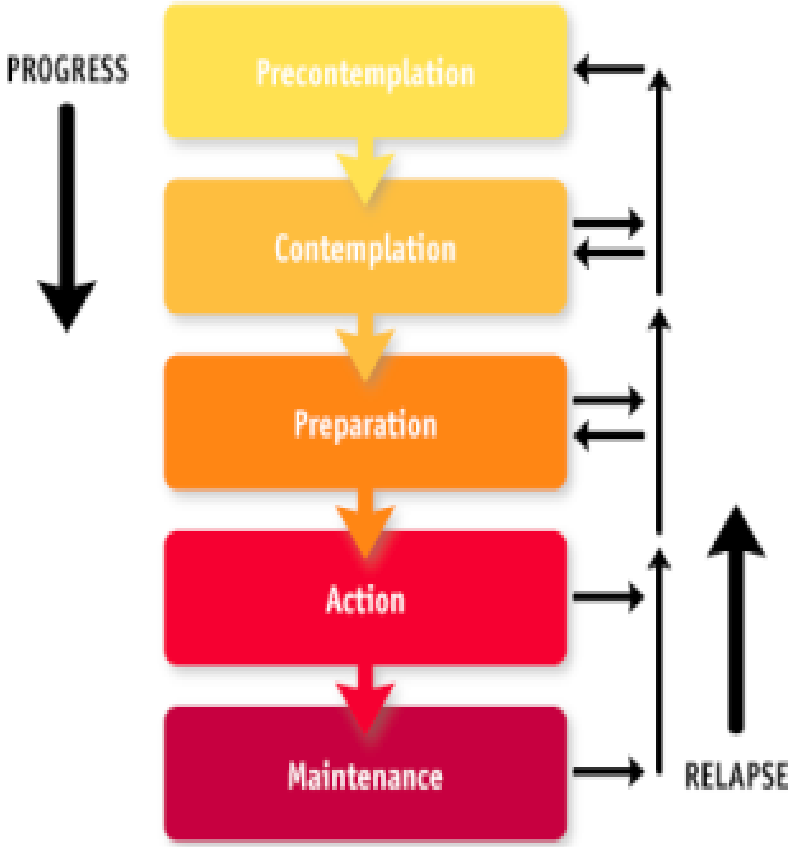
- Economos, 2008

Stages of Change for individuals and organizations



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