Nutrition Counseling for Obesity Prevention in Children:

A HANDBOOK FOR THE DENTAL COMMUNITY

TEMPLE UNIVERSITY
Kornberg School of Dentistry

This handbook was developed by the Temple University Kornberg School of Dentistry in Collaboration with Temple University College of Public Health's Center for Obesity Research and Education

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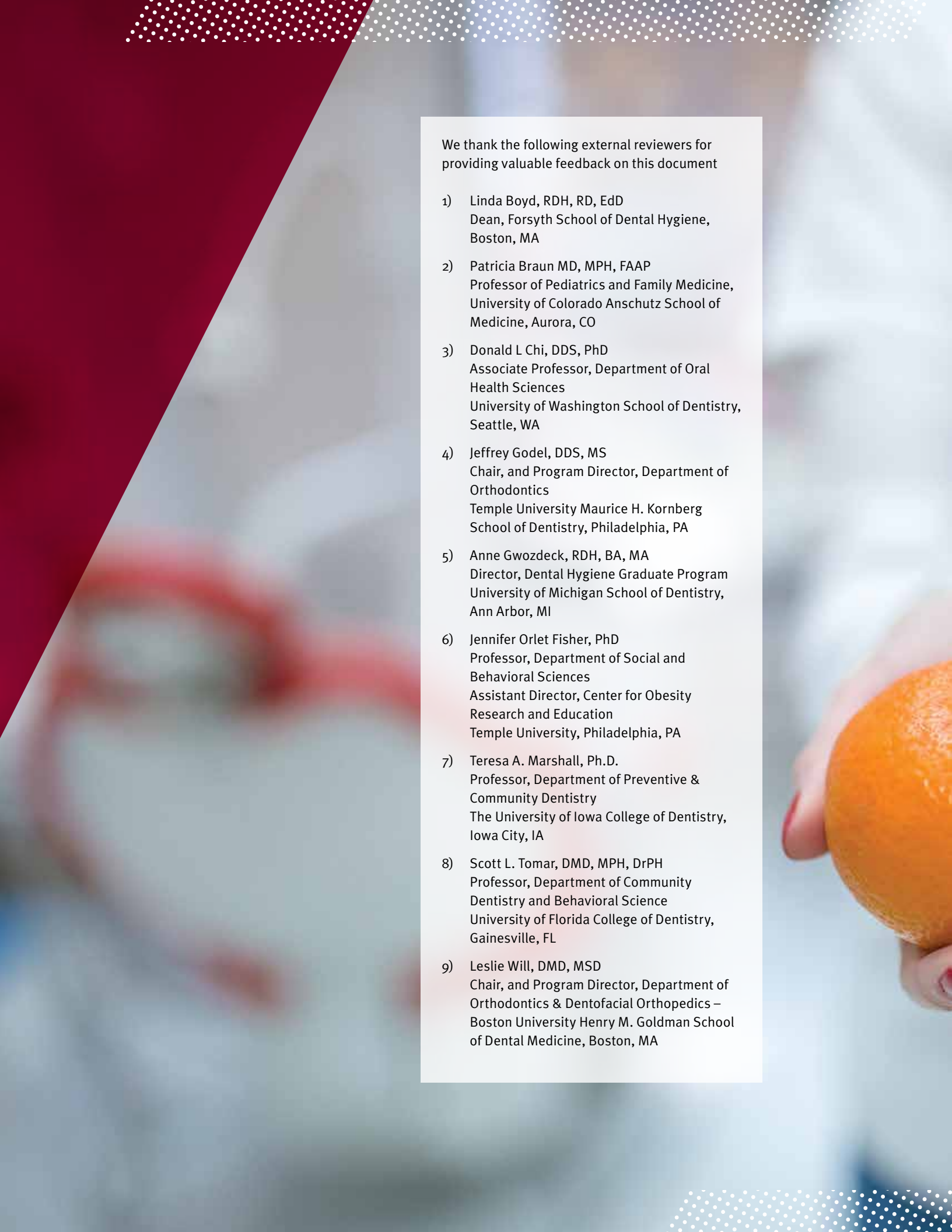

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Preface

Obesity and dental caries are prevalent, but preventable, chronic childhood diseases. These diseases are multifactorial in nature and share common nutritional risk factors. A majority of children and adolescents in the United States visit a dental office in a given year and have access to the services provided by dental care professionals. Because there are many behavioral factors that affect both oral health and child weight status, dental professionals are well-positioned to comprehensively evaluate child dietary and nutritional behaviors, assess risk, and provide appropriate counseling to children and families to prevent obesity and dental caries. This exemplifies the Common Risk Factor Approach, which operates on the sound principle that a few risk factors commonly underlie co-morbid conditions. By addressing the underlying causes of oral diseases and obesity, and using comprehensive, preventive care, rather than disease-specific approaches, we can achieve significant positive health outcomes with lower costs and greater efficiency.

84.6%
children ages 2 to 17 years had a dental visit in the past year

Obesity is among the leading public health concerns affecting populations around the world. The unfortunate reality is that most children and adolescents with obesity will remain obese as adults. As a result, they will remain at heightened risk for morbidity and premature mortality. In addition to having an individual impact on health and longevity, obesity has economic and societal consequences. The treatment of obesity and related chronic diseases in the United States has a significant economic impact due to direct costs of treatment and indirect costs related to work absenteeism and productivity. Given the severity and impact of obesity, all pediatric health care providers, including dental professionals, need to become engaged with strategies to prevent the development of obesity.

Many national associations have recognized dental professionals' responsibility in understanding their patients' diet and nutritional behaviors to prevent obesity and dental caries. The American Dental Association (ADA) acknowledges that eating patterns and food choices play a major role in maintaining good oral health. The American Dental Hygienists' Association (ADHA) stresses the importance of evaluating patients' nutritional history and dietary practices. The American Academy of Pediatric Dentistry (AAPD) indicates that dietary and nutritional counseling should be provided regularly by pediatric dentists and other health care providers who treat children. **Dental professionals should be trained in the tenets of healthy nutrition and dietary counseling and bring these strategies into the dental office to prevent childhood obesity.** However, not all U.S. dental schools and dental hygiene programs have integrated specific didactic and clinical training activities in their curricula on the prevention of obesity and promotion of healthy nutrition.

This handbook has been developed primarily to serve as an evidence-based resource for interested dental schools and dental hygiene programs to increase the knowledge and skills of students, residents, and fellows in childhood obesity prevention, healthy nutrition, and dietary counseling. This guide provides the following information:

1) An overview of childhood obesity and its consequences

2) Dietary recommendations for children and early life practices that support child nutrition for optimal oral health and obesity prevention

3) Specific content that can be integrated into dental practice to support childhood obesity prevention efforts.

This handbook is a useful resource for practicing dental professionals, oral health-related organizations, community health centers with dental clinics, and other academic programs interested in playing a role in childhood obesity prevention and comprehensive efforts to raise healthy, smiling children.

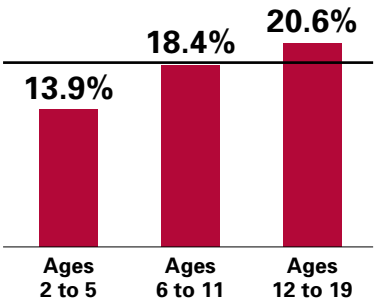
SECTION 1

Understanding Childhood Obesity

OBESITY AS A DISEASE

- Addressing childhood obesity is a public health priority for all health care professionals, including dental professionals

2015–2016 Obesity Prevalence Among U.S. Children



18.5%

obesity prevalence among U.S. children ages 2 to 19 years in 2015–2016

- Childhood weight status tracks into adulthood.
  - Children with overweight or obesity are at greater risk for the development of weight-related comorbidities, as well as premature mortality, in adulthood.
  - Notable in recent reports is the rapid rise of severe obesity which was rare in the 1970s. This rise in severe obesity has been remarkably steep in the United States.

Prevention efforts include engaging health care providers across the health care continuum and encouraging positive health behaviors early in life.

PHYSIOLOGICAL COMORBIDITIES

- Childhood overweight and obesity are associated with adverse health outcomes and increased risk for physiological comorbidities such as:
  - Type 2 diabetes
  - Sleep apnea
  - Dyslipidemia
  - Hypertension
  - Cardiovascular disease
  - Metabolic syndrome

PSYCHOSOCIAL COMORBIDITIES

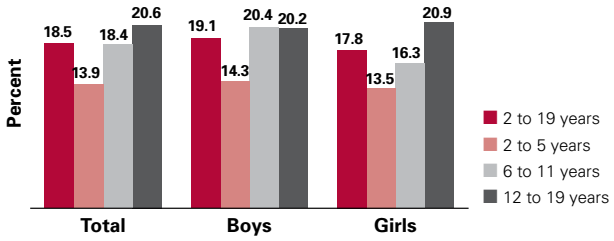
- Additionally, children experience negative psychosocial consequences including:
  - Stigma/bias,
  - Poor self-esteem
  - Body image concerns
  - Depression
  - Experiencing teasing/bullying
  - Discrimination

ETIOLOGY OF OBESITY

- **Obesity is a complex disease** influenced by genetic and environmental factors
- Obesity is the result of **energy imbalance**
  - Associated with excess intake and/or inadequate energy expenditure
- The primary behaviors associated with pediatric weight status are **diet and physical activity**. The goal of pediatric obesity prevention efforts is to target and improve these behaviors.

DISPARITIES IN CHILDHOOD OBESITY

- Obesity disproportionately affects black and Hispanic youth.
  - Prevalence of obesity among youth age 2–19 years in 2015–2016 was higher among Hispanics (25.8%) and non-Hispanic blacks (22.0%) than among non-Hispanic whites (14.1%)



- Health care providers who **provide care to underserved and medically vulnerable populations** have the potential to address these health disparities.

BODY MASS INDEX AND CHILD HEALTHY WEIGHT

Body mass index (BMI) is calculated from a child's measured height and weight. BMI is then compared against sex-specific age-adjusted BMI growth trajectories (BMI-for-age percentiles).

- Used to screen for weight-related issues
- $$BMI = \frac{\textit{Weight in Kilograms}}{\textit{(Height in Meters) x (Height in Meters)}}$$
- **Excess adiposity is associated with increased risk for specific diseases.** BMI is not an absolute measure of excess body fat, but because it is easier, less expensive, and less time-intensive, it is used as a convenient, practical and accessible proxy of adiposity status for health providers.
- Because children are **continuously growing**, BMI is plotted on age-and-sex specific growth charts. BMI percentiles are used to categorize risk. Because this is not an absolute measure, other factors should be considered when determining overall risk, including:
  - BMI percentile trajectory
  - Parent weight status
  - Poverty/food insecurity
  - Dietary intake
  - Physical activity
  - Sedentary (e.g., screen) time
  - Stress
  - Sleep quality and quantity

Age- and sex-specific body mass index (BMI) percentile classification:

- Less than 5th percentile = **underweight**
- 5th to <85th = **normal weight**
- 85th to <95th = **overweight**
- ≥95th = **obese**

While there are a myriad of factors that influence weight status and obesity risk in children, **dental providers can play a significant role in obesity prevention efforts by targeting the factors that also predict oral disease risk– namely nutrition and child eating behavior.** This handbook provides an overview of childhood obesity and then details more in-depth information related to screening and counseling for obesogenic behaviors that overlap with oral health targets.

ADDITIONAL RISK FACTORS FOR CHILDHOOD OBESITY

It is important for all health care practitioners to understand and identify risk factors for childhood obesity, so they can screen for these determinants and provide appropriate counseling. While not all of these will fall within the scope of regular dental practice, dental providers should have an awareness of these factors, which might provide context or overlap with other behaviors impacting oral health.

PARENTAL RISK FACTORS

- **Parent weight status** – Parents with overweight or obesity are more likely to have children with overweight and obesity.
- Targeting **parent eating behaviors** and **parent role modeling** is one strategy to address childhood obesity.
  - Parent food purchasing, cooking, and eating behaviors can influence what foods children have access to and consume. This can be a good point of discussion with parents.

CHILD BEHAVIORAL RISK FACTORS

Sleep. Adequate sleep is associated with improved mental and physical health, and obesity is associated with shorter sleep duration.

- Young children should not be put to bed with a bottle or cup
- American Academy of Pediatrics (AAP) recommended sleep per day:
  - Infants >1 year: 12–16 hours including naps
  - Children 1–2 years: 11–14 hours including naps
  - Children 3–5 years: 10–13 hours including naps
  - Children 6–12: 9–12 hours
  - Children 13–18: 8–10 hours

Linking Sleep Hygiene to Dental Practice: "Brush, Book, Bed" (BBB) as a routine. BBB promotes a bedtime routine that begins with tooth brushing, followed by reading a book and then sleep. This is the nighttime routine endorsed by AAPD and AAP. Promoting this routine can address positive oral health behaviors, child literacy development, and healthy sleep habits. Turn off screens before beginning the routine.

Screen time (or sedentary entertainment, including TV, video games, computer time, tablets, and other forms of electronic entertainment) is a risk factor for obesity.

- Recommendations include: (1) avoidance before 2 years of age, and (2) limiting use to not more than 2 hours per day for children age 2 years and older.

Physical Activity Guidelines for Children

PRE-SCHOOL AGED CHILDREN (3–5 YEARS)

- Children should be **physically active throughout the day**. This enhances growth and development.
- Active play and movement that includes a **variety of types should be promoted** (e.g. aerobic, strength building, balance, and flexibility).

CHILDREN AGE 6 YEARS AND OLDER

- Children age 6 years and older should get **at least 60 minutes (1 hour) of physical activity per day**. The activity period should include aerobic activity (moderate or vigorous) on at least 3 days, muscle strengthening on at least 3 days and bone-strengthening on at least 3 days.

Linking Screen Time and Physical Activity to Dental Practice: Encouraging physical activity is important for overall health and to reduce risk of obesity in children. Physical activity is a great way to displace screen time, which is when children are likely to mindlessly or continuously snack and consume sugary drinks. This is associated with increased caries risk. Remind parents that sugary drinks contain a large amount of sugar and are not necessary. Water is sufficient during physical activity for children.

CHILDHOOD OBESITY PREVENTION

Obesity prevention is a national public health priority. Thought leaders agree that a **multi-disciplinary, comprehensive** approach to healthy weight is required. Such an approach requires **frequent** and **consistent** conversations with patients around the importance of engaging in healthy eating habits. These reminders can come from a range of health care providers. Regular visits with dental care providers provide another important opportunity – beyond pediatric care and school-based settings – to deliver important messages about nutrition and weight control. Building on current evidenced-based efforts, dental professionals can reinforce recommendations that have been found to be effective to help promote dental health and overall health with a reduction in obesity. The AAP has identified several preventive measures for children age 2–18 years including targets that align with oral health principles including:

- ***Limiting juice, as well as sugary and artificially sweetened beverages***
- ***Encouraging water consumption***
- ***Reducing high-sugar, high-salt foods and snacks***
- ***Increasing fruit and vegetable intake***
- ***Promoting positive parent-feeding practices***
- ***Encouraging family routines and parent role modeling***

The next section of the handbook provides comprehensive information about these nutrition-focused targets and how to integrate nutrition counseling for oral health into dental practice.

SECTION 2

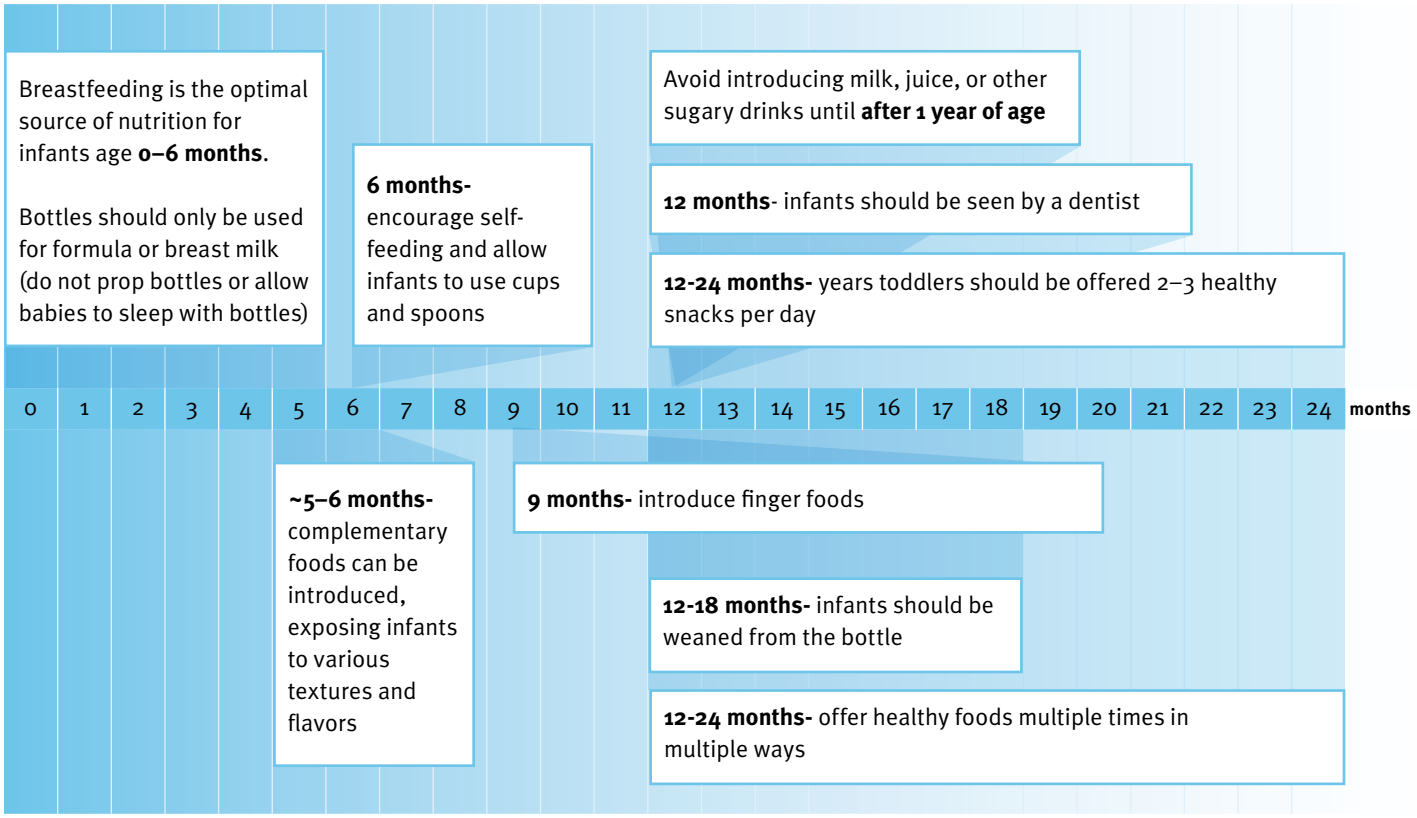
Nutrition for Dental Providers

Oral Health and Nutrition are independently associated with overall health and chronic disease prevention. There is a pressing need to increase the awareness that these topics are also interrelated

✔ Good oral health improves the ability to taste, chew and swallow
✘ Poor diet can lead to poor oral health
✔ Balancing dental and nutrition perspectives so recommendations work together is important

Dental providers can have an impact on factors that intersect to affect both oral health and nutrition. Encouraging people to seek preventative dental care, while providing counseling on nutrition behaviors related to oral health, can have substantial impacts on overall health and wellness. Making the connection between diet, oral health and overall health is important for dental providers and their patients.

DEVELOPMENTAL EATING TIMELINE FOR INFANTS AGE 0–2 YEARS



EARLY CHILDHOOD CARIES (ECC)

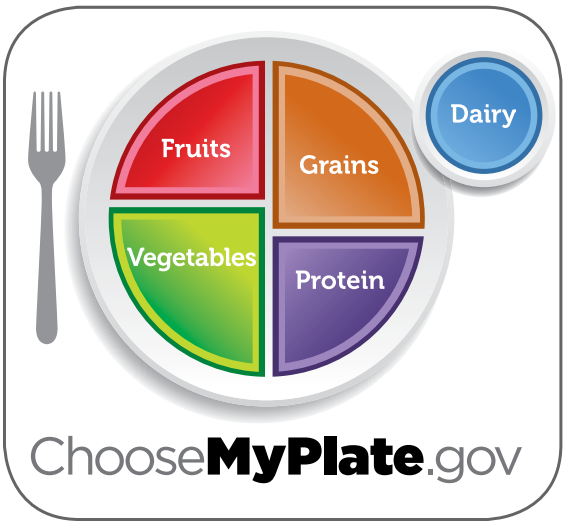
Prolonged exposure to drinking formula or sugar-containing drinks for long periods of time is associated with increased risk in young children for a pattern of tooth decay known as Early Childhood Caries (ECC).

- Juice is a common factor associated with ECC, but is not needed to meet the fluid or nutrient needs of children at any age. Juice and other sugar-containing beverages should be completely avoided prior to 1 year of age.

TO PREVENT ECC

- Prevent frequent consumption of liquids and solid foods containing sugar
- Do not put infants to sleep with bottles containing formula, juice or other sweetened drinks
- Brush twice daily using a soft tooth brush and a small amount (rice-sized) of fluoridated tooth paste for children under three. For children 3–6 years, use a pea-sized amount of fluoridated tooth paste

NUTRITION FOR CHILDREN AGE 2 YEARS AND OLDER



General healthy eating pattern for children 2 years of age and older includes:
Fruits, vegetables, whole grains, low-fat meats, low-fat dairy, and fish

Eat This, Not That

Fruits, vegetables, dairy, whole grains, lean protein, healthy fats, water

Fruit-flavored soda, candy, sugary snacks, fruit snacks

DIETARY GUIDELINES FOR AMERICANS

These general principles apply to all children 2 years of age and older. The dietary guidelines encourage a healthy eating pattern across the life span. Selecting foods and beverages that are varied, nutrient-dense, and fall within the appropriate calorie needs will help achieve healthy body weight and reduce the risk of diet-related chronic disease. This will also promote oral health and reduce caries risk.

A HEALTHY EATING PATTERN INCLUDES:

- ✔ A variety of whole fruits and vegetables
- ✔ Whole grains
- ✔ Dairy including milk, yogurt, cheese and soy
- ✔ Protein including lean meats, poultry, nuts, seed, legumes (beans and peas), seafood and eggs
- ✔ Heart-healthy oils

A HEALTHY EATING PATTERN LIMITS:

- ✘ Saturated fats
- ✘ Trans fats
- ✘ Added sugars and other refined carbohydrates
- ✘ Processed meats
- ✘ Excess sodium

THESE FOODS ARE CHOKING HAZARDS FOR CHILDREN UNDER 4 YEARS OF AGE AND INTAKE SHOULD BE MONITORED:

- ✘ Cherry or grape tomatoes
- ✘ Whole Grapes
- ✘ Large chunks of meat or cheese
- ✘ Hot dogs, meat sticks, sausages
- ✘ Nuts and seeds
- ✘ Hard candy
- ✘ Chewing gum
- ✘ Marshmallows
- ✘ Popcorn
- ✘ Raw vegetables
- ✘ Raisins

TIPS TO PREVENT CHOCKING:

- **Cut foods into strips or very small pieces**
- **Supervise children while they are eating**
- **Avoid feeding children in the car**
- **Make sure children are seated and not distracted**

CARBOHYDRATES AND CARIES RISK

Cariogenic bacteria feed on carbohydrates and release acids that break down tooth enamel. Therefore a diet high in refined carbohydrates, especially sticky carbohydrate-containing foods like gummy candy or fruit snacks, can increase risk for tooth decay.

CARBOHYDRATES THAT PROTECT AGAINST CARIES RISK:

- ✔ **Fruits**
- ✔ **Vegetables**
- ✔ **Whole grains**

EXAMPLES OF HEALTHY SNACKS THAT PROTECT AGAINST CARIES RISK:

- ✔ Cucumber slices and dip
- ✔ Celery or apple slices and peanut butter
- ✔ Carrot sticks and hummus
- ✔ Whole grain crackers
- ✔ Cheese (slices or sticks)

CARBOHYDRATES THAT INCREASE CARIES RISK:

- ✘ **Sugar**
- ✘ **Soft drinks**
- ✘ **Juice**
- ✘ **Candy**
- ✘ **Sports drinks**

EXAMPLES OF SUGARY SNACKS THAT INCREASE CARIES RISK:

- ✘ Fruit snacks
- ✘ Sweetened yogurt or yogurt pops
- ✘ Candy or chocolates
- ✘ Gummy, sticky and sour candies
- ✘ Lollipops and sugary gum

HOW TO REDUCE RISK OF CARIES:

- Snack on fruits and vegetables instead of snacks high in processed sugar or carbohydrates
- Have structured snack and meal times to avoid eating or drinking continuously throughout the day
- Fat and protein may have a protective effect on tooth enamel– consume balanced meals and snacks
- Rinse mouth after eating/ snacking or brush regularly

PROMOTING WATER INTAKE

- Daily water intake is important for overall health but can also help children meet their fluoride needs for oral health when drinking fluoridated tap water
- Drinking water can also help manage child body weight and reduce overall calorie intake when water is consumed in place of sugary drinks
- Water intake varies based on child age, sex, activity level and environment (humidity, temperature)
- As a general rule, each day children should drink 1 cup of water for every year of age

Age	Cups of Water (8oz).
1	
2	
3	
4	

Drink This, Not That

- Water and milk should be promoted for oral health and optimal nutrition
- Encourage milk with meals and water in between eating occasions

- Juices, sodas, and sports drinks should be limited

■ ***SECTION 3***

Assessment and Counseling Tools for Dental Providers

CHILD HEALTHY WEIGHT AND NUTRITION SCREENER

In order to facilitate the identification of nutrition concerns and promote patient education to improve behaviors, we developed a child healthy weight and nutrition screener. This screener can be used to assess risk factors that are associated with poor nutrition and childhood obesity as well as poor oral health outcomes like dental caries. It is intended for this screener to be administered by dental professionals alongside a Pediatric Caries Risk Assessment. Two versions of the screener have been created to provide developmentally targeted counseling points: One screener is available for younger children (1–5 years) and one for older children (6–18 years).

IMPLEMENTATION IN THE CLINIC:

- The Child Healthy Weight and Nutrition Screener should take approximately 5–7 minutes to complete with patients and be part of the regular interview and conversation of the appointment.

GOAL: The best interviewers do not ask exact questions but gather the necessary information in a natural conversation during the course of the appointment.

- Dental providers should complete screener with parent, identify risks, and provide counseling based on targets aligned with risk behaviors

GOAL: No more than two counseling targets should be emphasized at any one visit. Whenever possible, use motivational interviewing or other counseling techniques to empower parents to suggest and confirm the behavior changes. An example of a counseling protocol is available on page 19 and additional counseling resources are on page 22.

- Dental hygienists also can be trained to conduct screeners and provide counseling

GOAL: This is a team effort! A high functioning preventive team can conduct the same conversation seamlessly with effective handoffs and training on consistent messages around counseling targets.

- In order to address concerns about time and efficiency in practice, it is recommended that this screener be integrated with a caries risk screener.

GOAL: Caries Risk and Obesity Prevention have common etiologies. Therefore, using complementary instruments to assess both simultaneously makes sense. Be sure to combine the Child Health Weight and Obesity Prevention Screener with the Caries Risk Assessment instrument best suited to your practice or use this as an opportunity to introduce an effective Caries Risk Assessment.

CHILD HEALTHY WEIGHT AND NUTRITION SCREENER: CHILDREN 1–5 YEARS

Please note: The American Academy of Pediatric Dentistry (AAPD) recommends that children establish a dental home by age 1 or within 6 months after the first tooth erupts. Therefore, recommendations are provided for children 1 year of age and older. Specific dietary recommendations for children younger than 1 year are noted in Section 2.

Assessment	High Risk	Low Risk	Counseling Prompts and Key Points
Child drinks juice or other sugary drinks daily	❑ Yes	❑ No	***PROMPT:*** Tell me a little bit about what your child typically drinks. ***KEY POINTS:*** • Milk and water are sufficient beverages. Juice is not necessary and should be limited: Limit to 4 ounces daily for toddlers age 1–3 Limit to 4 to 6 ounces daily for children age 4–5 • Juice is not an ideal way to provide fruits or vegetables (most juices contain very little fruit) • Juice and other sugar-containing drinks can increase risk for tooth decay
Child eats fruits and vegetables daily	❑ No	❑ Yes	***PROMPT:*** Feeding young children can be challenging. Tell me about what your child typically eats in a day. ***KEY POINTS:*** • Fruits and vegetables are nutrient dense and important for healthy growth and development • Many children will need to be exposed to vegetables many times (sometimes more than 10) before accepting them • Encourage children to try foods but do not force them to eat • Children are more likely to accept foods if they see their parents eating them • Encouraging fruit and vegetable intake early on will promote the continued development of a healthy eating pattern
Child eats sugary or salty snacks daily	❑ Yes	❑ No	***PROMPT:*** Tell me about what kinds of foods you offer to your child for snacks; What are some of your child's favorite snacks? ***KEY POINTS:*** • Toddlers (1–3 years) should be offered 2-3 small healthy snacks per day • Preschoolers (3–5) should be offered 1-2 small healthy snacks per day • Snacks should be used to help young children meet their nutritional needs • Parents should offer a fruit or veggie for at least one snack every day • Snacks should be structured; do not allow continuous snacking throughout the day. This increases caries risk
Parent uses responsive feeding practices	❑ No	❑ Yes	***PROMPT:*** Tell me about some strategies you use to feed your children during mealtime. ***KEY POINTS:*** Responsive feeding guide: "Parents provide, child decides" • Parents should structure meal time but allow children to self-regulate eating (children choose what and how much) • Parents should learn to recognize child hunger and fullness cues and respond accordingly • Parents should role model healthy eating behaviors • Parents should avoid using foods (especially unhealthy foods) as rewards or to modify behavior

CHILD HEALTHY WEIGHT AND NUTRITION SCREENER: CHILDREN 6–18 YEARS

Assessment	High Risk	Low Risk	Counseling Prompts and Key Points
Child Weight Status Height (Ft. In.)_____ Weight (lbs.)_____ BMI% _____	❑	❑	***USE BMI% TO ASSESS RISK:*** ***If participant jumped up percentiles since last visit or if BMI% 75 to 85:*** • Patient is **at risk** for overweight; • Talk with parents about efforts to increase activity and improve diet to prevent weight gain ***If BMI% ≥85:*** • **Child has overweight or obesity** and is at-risk for co-morbidities • Talk with parents about making significant changes to increase activity and improve diet and reduce excess weight • Refer to pediatrician
Child drinks juice or other sugary drinks daily	❑ Yes	❑ No	***PROMPT:*** Tell me a little bit about what your child typically drinks. ***KEY POINTS:*** • Milk and water are sufficient beverages. Juice is not necessary and should be limited: Limit to 4 to 6 ounces daily for children age 6 Limit to 8 ounces daily for children 7 years and older • Juice is not an ideal way to provide fruits or vegetables (most juices contain very little fruit) • Juice and other sugar-containing drinks can increase risk for tooth decay
Child eats fruits and vegetables daily	❑ No	❑ Yes	***PROMPT:*** Tell me about what your child typically eats in a day. ***KEY POINTS:*** • Children need to be exposed to a variety of foods and flavors • Fruits and vegetables are nutrient dense and important for healthy growth and development • Many children will need to be exposed to foods many times (sometimes more than 10) before accepting them • Children are more likely to accept healthy foods if they see their parents eating them • Encouraging fruit and vegetable intake early on will promote the continued development of a healthy eating pattern
Child eats sugary or salty snacks daily	❑ Yes	❑ No	***PROMPT:*** Tell me about what kinds of foods you offer to your child for snacks; What are some of your child's favorite snacks? ***KEY POINTS:*** • Children and teens need to eat every 3–4 hours to meet their nutritional needs; this is about 1 snack per day depending on meals (2 if highly active or going through growth spurt) • Snacks should be used to meet nutritional needs and include fruits, vegetables, whole grains, dairy and/or healthy fats • Offer snacks at structured times and ensure they are eaten while seated • Children should not eat snacks on the go or continuously throughout the day (this increases caries risk) • Avoid offering snacks too close to meal times
Parent uses supportive feeding practices	❑ No	❑ Yes	***PROMPT:*** Tell me about some strategies you use to feed your children during mealtime. ***KEY POINTS:*** • Avoid eating while watching TV or being on other screens (e.g., phones, computers). This can lead to mindless eating • Parents should role model healthy eating behaviors; children will "do as you do" not "do as you say" • Structure when food is available and when it can be eaten, but not which foods or how much • Prepare family meals at home and engage in social conversation around eating • Teach about eating and health (e.g., cooking, making food choices, buying food)

MEASURING CHILD HEIGHT AND WEIGHT AND BODY MASS INDEX (BMI)

In addition to conducting the screener, it is recommended that dental providers track and monitor child weight status in older children (**age 6 years and older**).This section provides an overview of strategies to assess and monitor child weight status in a dental setting. This can help provide context to the behavioral components evaluated in the Child Healthy Weight and Nutrition Screener.

ASSESSMENT OF OBESITY RISK

1. It is recommended that child height and weight be measured at every dental visit. This can be used to calculate and plot child BMI percentile (BMI%) over time.
2. Assess behavioral risk using the child nutrition and healthy weight screener
3. Interpret screener responses to identify target behaviors/problems
4. Provide counseling and referral, as appropriate

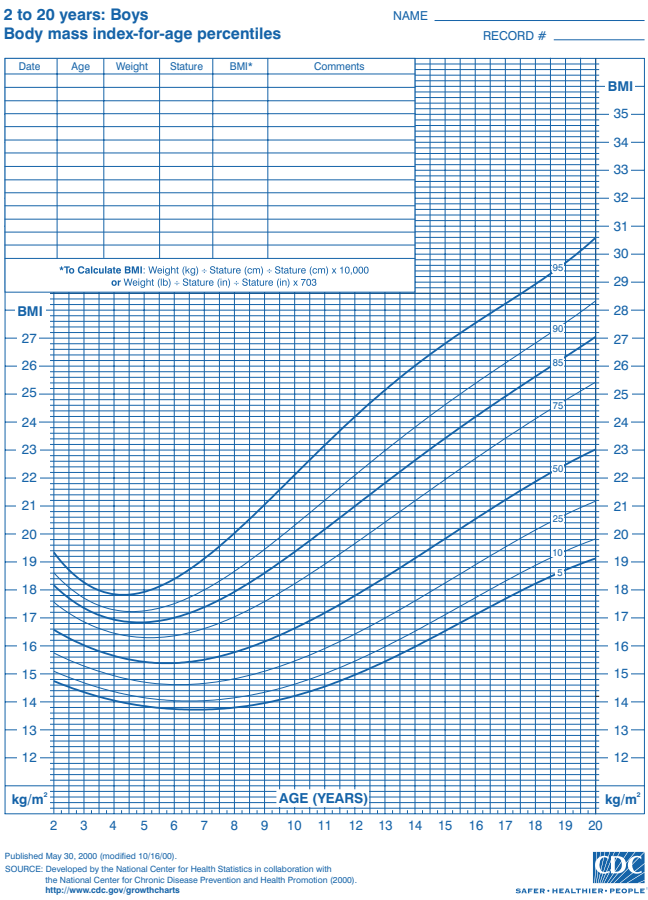
MEASURING CHILD HEIGHT

1. Remove the child's or teen's shoes and bulky clothing. Ideally, use a wall-mounted stadiometer.
2. Have the child or teen stand with feet flat and together. Make sure legs are straight, arms are at sides, and shoulders are level.
3. Make sure the child or teen is looking straight ahead and that the line of sight is parallel with the floor.
4. Use a flat headpiece to form a right angle with the wall and lower the headpiece until it firmly touches the crown of the head.
5. Make sure the measurer's eyes are at the same level as the headpiece.
6. Accurately record the height to the nearest 1/8 inch or 0.1 centimeter.

MEASURING CHILD WEIGHT

1. Use a digital scale.
2. Have the child or teen remove shoes
3. Have the child or teen stand with both feet in the center of the scale.
4. Record the weight to the nearest decimal fraction (for example, 55.5 pounds or 25.1 kilograms).

BMI AGE AND SEX-SPECIFIC GROWTH CHARTS



Published May 30, 2000 (modified 10/16/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

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SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
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CHILD BODY MASS INDEX (BMI) SCREENING AND TRACKING PROTOCOL

- Child height and weight should be measured and BMI derived from calculations or appropriate software
- Child BMI percentile (BMI%) should be plotted on the appropriate chart based on child sex (male, female) and age (years)
- Identifying Risk:
  - Plot child BMI and use percentile classifications to identify risk:
    - If child's BMI is at or above the 85th percentile, this is an indicator of weight-related risk
    - Children ≥85th percentile are classified as having overweight; ≥95th are classified as having obesity
  - Over time, if child BMI increases significantly from the previous trajectory and towards overweight/obesity, this is an indicator of weight-related risk
- Identifying Extreme Risk- If children are underweight (BMI% <5%) or have extreme obesity (BMI% >99th), referral to pediatrician and other appropriate resources (e.g., registered dietician, food assistance programs) is warranted.

COMMUNICATING WITH PATIENTS ABOUT NUTRITION AND CHILD HEALTHY WEIGHT

Once risky behaviors have been identified by the screener, providers should conduct brief interviews with parents/patients to better characterize the problem behavior and identify opportunities to replace it with a healthier behavior.

For example, if the provider learns that the patient is consuming lots of sugary drinks and not a lot of water, they should review the patient's behavior over the course of an average day and identify "risk occasions" and "prevention occasions."

- An example of a risk occasion is drinking a soda.
- An example of a prevention occasion is brushing teeth.

After reviewing an average day, providers should identify the risk occasions and engage in motivational interviewing with the patient to create a plan for changing those occasions. An example case study (Nutrition Counseling Sample for a 3-year old) is provided on page 20 and highlights how to collect nutritional data and provide intervention to parents. Additional key points about patient-provider communication are also provided below.

APPROPRIATE LANGUAGE FOR COMMUNICATING WITH PATIENTS

Overweight and obesity can be an emotionally sensitive issue for children and parents alike. Thus, it is important to use patient-centered language, and discuss the issue using acceptable terminology and an empathic, supportive tone.

- **Dental providers should be prepared to provide counseling around behaviors, but not weight.** If providers have assessed child weight status and identified risk, they should refer the patient to their primary care provider. The goal should be to emphasize behaviors to achieve optimal health and development.
- **Describe weight in objective terms.** For example, use terms like "unhealthy weight" or "children with obesity." This is considered appropriate patient-centered language related to child weight status.
  - Do not say or write "obese" or "overweight" child/children

Effective communication with patients is important. Two key skills for communication in health care include: 1) relationship building and 2) information exchange.

RELATIONSHIP BUILDING

- Empathy and active listening can support relationship building
- Non-verbal cues like head nods, gestures, tone of voice, and eye contact can communicate trust, respect and care

INFORMATION EXCHANGE

- Asking open-ended questions, avoiding multiple questions at once, assessing current knowledge of the issue, providing information in understandable language, confirming understanding, and listening are behaviors that will support effective information exchange

HERE ARE SOME GENERAL PROMPTS TO GUIDE YOUR CONVERSATIONS WITH PATIENTS AROUND HEALTHY EATING AND WEIGHT:
Tell me about some of the concerns you have related to your child's diet.
What are your primary concerns about your child's diet?
What challenges have you experienced related to your child's intake of sugary drinks?
What questions do you have about the things your child eats and drinks and how they might affect their oral health?
What changes do you think you would like to make to improve your child's health?

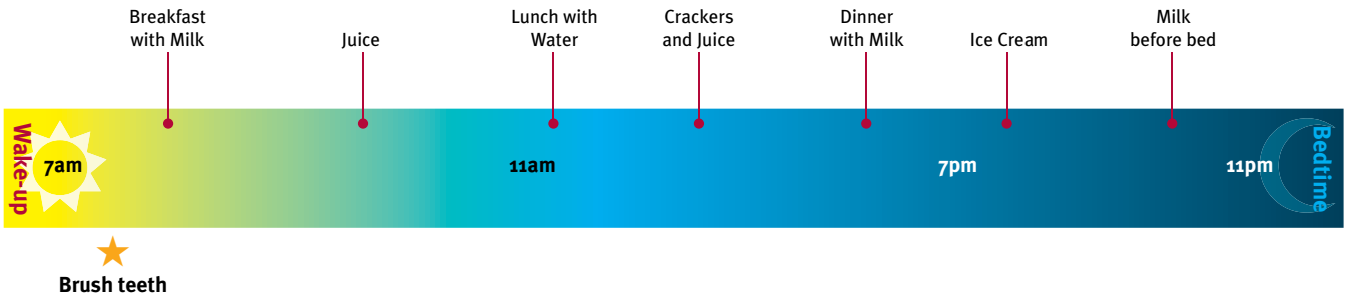
BENEFITS FOR DENTAL PROVIDERS:

By incorporating these approaches into dental practice, we hope providers experience benefits related to patient care and professional satisfaction

- By screening for health behaviors that promote optimal nutrition and healthy weight, dental providers show patients that they care about their patients' overall health and wellness.
- This approach illustrates that dental providers deliver comprehensive care and promote evidence-based recommendations that not only prevent oral conditions, but also prevent the onset of other behavior-related diseases.
- Discussing the common risk factors of dental disease and obesity with patients has the potential to result in a healthier patient population, which results in professional satisfaction.

Nutritional Counseling Sample for a 3-year-old

BEFORE



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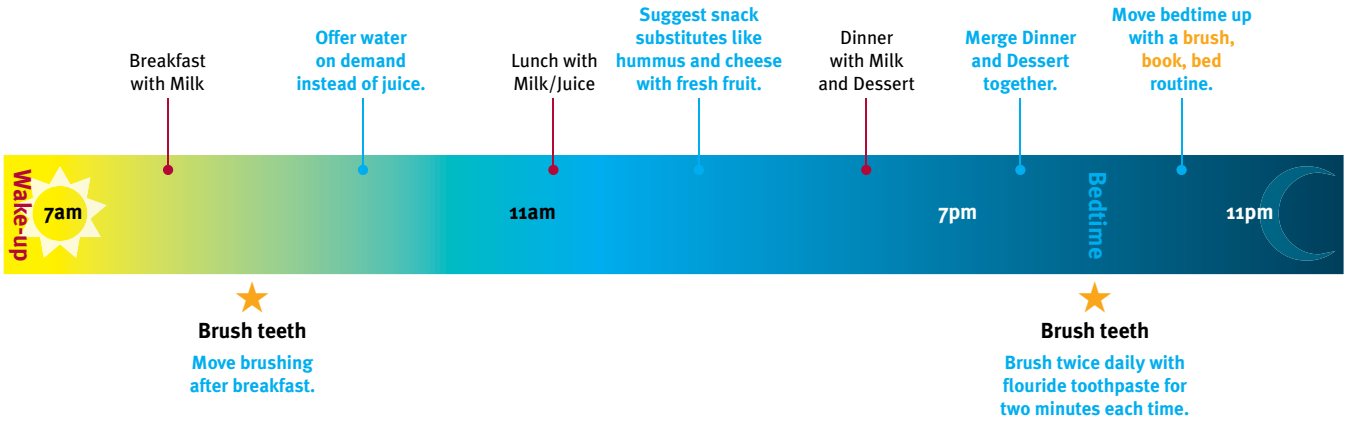

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Additional Resources

Academy of Nutrition and Dietetics
https://www.eatright.org/

American Academy of Pediatrics
https://www.aap.org/en-us/Pages/Default.aspx

American Academy of Pediatric Dentistry
http://www.aapd.org/

American Heart Association: Happy, Healthy Eating for Kids
http://www.heart.org/HEARTORG/HealthyLiving/HealthyKids/ActivitiesforKids/Happy-Healthy-Eating-for-Kids_UCM_312475_Article.jsp

American Public Health Association
https://www.apha.org/

Centers for Disease Control and Prevention
https://www.cdc.gov/

Dietary Guidelines for Americans:
https://health.gov/dietaryguidelines/2015/guidelines/

Physical Activity Guidelines for Americans;
https://health.gov/paguidelines/second-edition/pdf/Physical_Activity_Guidelines_2nd_edition.pdf

Motivational Interviewing for Childhood Obesity
https://go.kognito.com/changetalk

The Obesity Society
https://www.obesity.org/

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