Pediatric Weight Management Course

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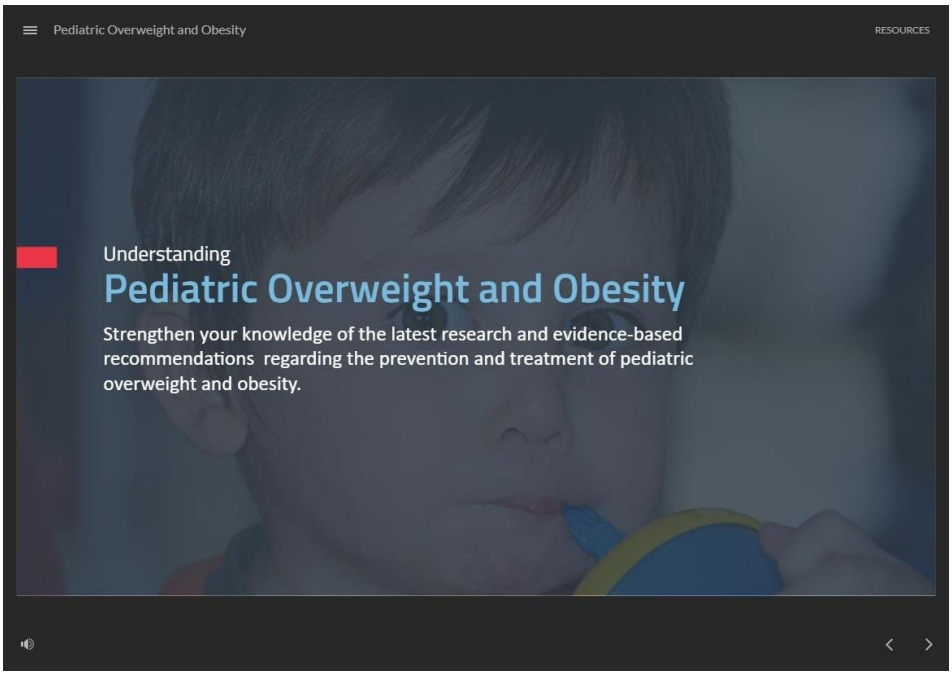
Module 1 Background

1.1 Course Introduction

Welcome to the Pediatric Overweight and Obesity course. The purpose of this course is to strengthen your knowledge of the latest research and evidence-based recommendations regarding the prevention and treatment of pediatric overweight and obesity. We will then apply these recommendations specifically to the WIC setting.



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This course contains seven modules. The modules are designed to be viewed in order, but you may navigate to any part of the course by using the course menu on the left side of the screen.

Together these modules address the wide range factors and influences affecting growth and weight in childhood.

- Module 1 Explains the first observations of rapidly increasing rates of weight gain for adults and children in the United States, and examines important trends observed in the past 40 years.
- Module 2 Looks at specific factors responsible for increasing rates of overweight and obesity among children.
- Module 3 Takes a closer look at interventions among the WIC-aged population to consider the most effective ways to improve outcomes.
- Module 4 Reviews research findings related to metabolic health and obesity.
- Module 5 Offers a summary of the motivational interviewing approach and explores specific skills leading to behavior change.
- Module 6 Discusses how evidence-based recommendations may be applied in the WIC setting.
- Module 7 Describes a scenario illustrating how everyday interactions in the WIC setting allow opportunities to apply what we've learned.

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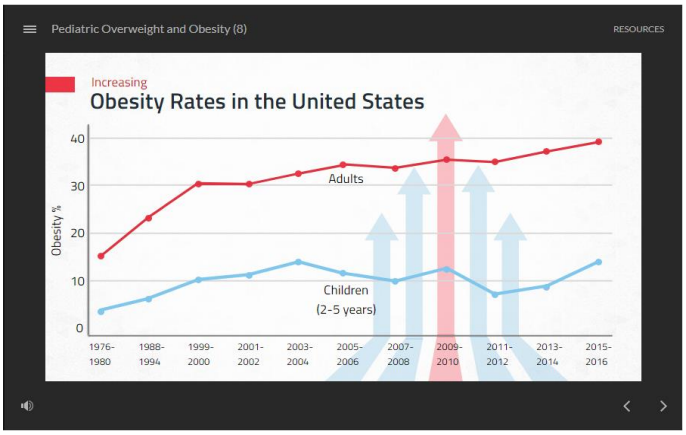
Module 1 Background

1.3 Increasing Obesity Rates in the United States 69s



Let's begin with some background information about the rapid rise of overweight and obesity among adults and children.

This graph contains the most recent NHANES data for adult and pediatric obesity provided by the CDC from 1980 to 2016. (1)

Let's look at adults. On the left, the first data point represents the first NHANES study conducted between 1976 and 1980. The percentage of adult obesity was 15%. By 2016 the rate of adult obesity increased more than 250% and had reached an all time high of 39.6%.

It's also important to note that although obesity rates have increased across all socioeconomic groups, the greatest impact has been on those with the fewest resources. For low-income populations the rate of obesity increased twice as fast compared to higher-income populations. (2)

Now let's take a closer look at WIC-aged children. We can see that there was a dramatic increase from 1994 to 2004. In 1994 rates were at 7.2% and spiked to 13.9% by 2004, an increase of almost 200%.

However, unlike adult rates that have continued rising, the rates of obesity among 2-5 year olds has plateaued, and was recorded as 13.9% in 2016. Although rising rates appear to have plateaued, these rates are among the highest ever documented by NHANES.

While it's too early to predict whether rates may begin rising again, the CDC explained this plateau as a likely result of increased public health awareness and action to reduce overweight and obesity in early childhood, especially in child care centers, schools and programs serving families with young children. (3)

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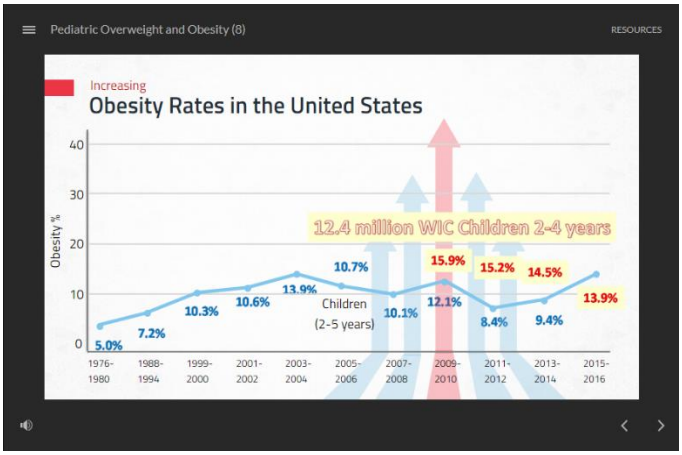

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WIC has been especially effective in reducing childhood obesity for both infants and children. Program changes in 2009 improved support for breastfeeding options and delayed the introduction of cereal and eliminated juice for infants. The results were almost immediate. The American Academy of Pediatrics (AAP) journal Pediatrics documented a decrease in weight-for-length among WIC infants from 2010-2014. (4,5)

Positive outcomes for children were just as remarkable.

All WIC 2-4 year olds
The Journal of the American Medical Association (JAMA) reported findings from a study of all certified WIC participants aged 2 to 4 years. From 2010-2016 the prevalence of obesity among these 12.4 million child WIC participants declined for all racial and ethnic groups. And if we compare the declining rates among children in WIC with the population trend for all 2-5 year olds in the U.S., we see that it becomes even more convincing that WIC participation has a positive impact.

WIC 2 year-olds only
While the overall trend for children in WIC is impressive, we can examine any subgroup from this WIC population by age to see this trend is unfailingly consistent across ages. For example, looking only at 2 year olds in WIC, we see a steady uninterrupted decline.

WIC 3 year-olds only
For 3 year olds in WIC the rate of obesity the rate of obesity steadily decreased in the same way.

WIC 4 year-olds only
And we see the same pattern for 4 year olds in the WIC program. Simply stated, WIC participation is beneficial in preventing obesity throughout early childhood, and across diverse communities nationwide. (6)

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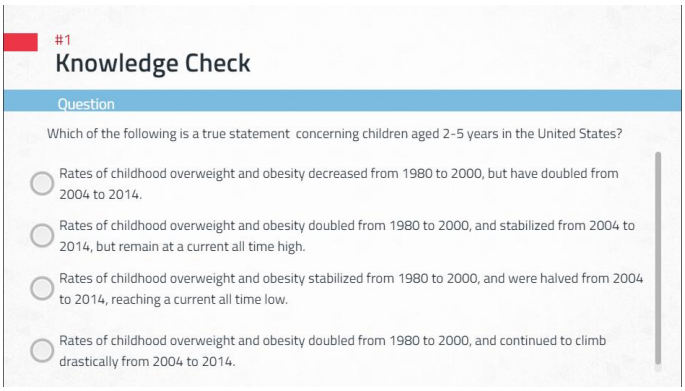
1.5 Knowledge Check 1

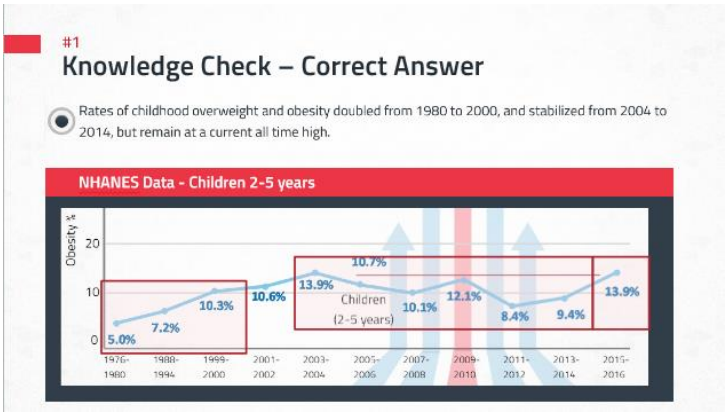
Let's pause for a quick knowledge check. Please select the correct answer.



Which of the following is a true statement concerning children aged 2-5 years?

A. Rates of childhood overweight and obesity decreased from 1980 to 2000, but have doubled from 2004 to 2014.
B. Rates of childhood overweight and obesity more than doubled from 1980 to 2000, and stabilized from 2004 to 2014, but remain at current all-time high.
C. Rates of childhood overweight and obesity stabilized from 1980 to 2000, and were halved from 2004 to 2014, reaching a current all time low.
D. Rates of childhood overweight and obesity more than doubled from 1980 to 2000, and continued to climb drastically from 2004 to 2014.

Feedback 1 Correct Response



The correct answer is "Rates of childhood overweight and obesity doubled from 1980 to 2000, and stabilized from 2004 to 2014, but remain at a current all time high."

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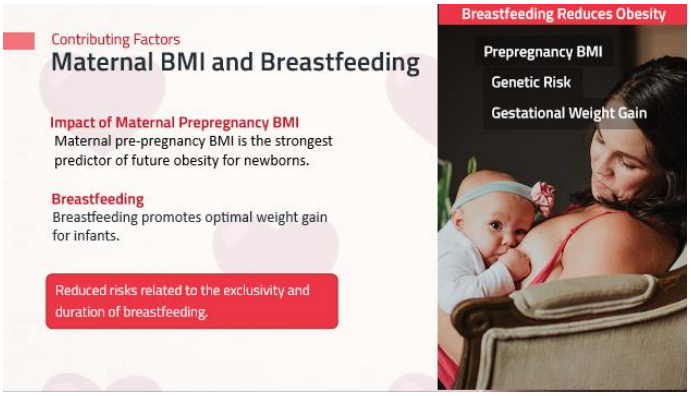
Module 2: Contributing Factors

2.1 Factors Responsible for Increases in Overweight and Obesity

Next we'll discuss key factors responsible for increases in overweight and obesity among children and women.

Pregnancy and breastfeeding factors



An abundance of research demonstrates the influence of maternal health during pregnancy and breastfeeding on growth and healthy weight in children.

Maternal pre-pregnancy BMI is the strongest predictor of future obesity for the newborn. Pre-pregnancy weight status also determines genetic risk for the child. During pregnancy, risks for both mother and infant increase with excess gestational weight gain, as well as the likelihood of large-for-gestational-age infants. (7)

Mothers continue to influence their infants' weight gain and weight status after pregnancy. For example, breastfeeding promotes optimal weight gain for infants, with reduced risks related to the exclusivity and duration of breastfeeding. (8)

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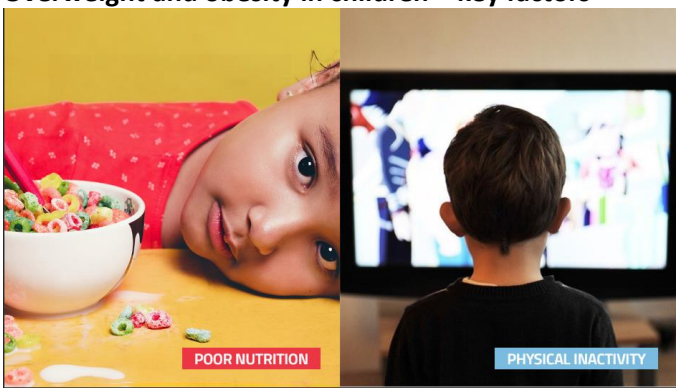
Overweight and obesity in children – key factors

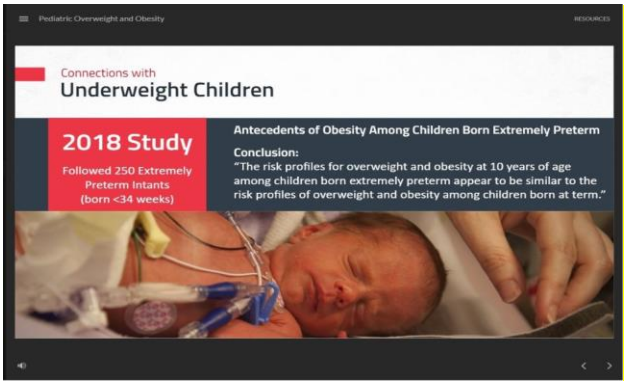


After infancy key factors influencing growth and weight include learning self-feeding skills and physical activity.

Evidence shows many families have limited access to safe places to play and limited access to affordable, healthy foods. These findings support research showing most children in the United States are not eating enough nutritious foods and are not getting sufficient physical activity. (9)

These lifestyle behaviors are strongly associated with poor health outcomes. Children who are overweight or obese are at greater risk for high blood pressure, type 2 diabetes and heart disease. The longer children are overweight or obese, the more likely they are to remain so into adulthood. In addition to these challenges, unhealthy foods are heavily marketed to children. In particular, caregivers may not be aware how screen time impacts physical activity and influences children through messaging. (10)

Connections with Underweight



Childhood risks for overweight and obesity are not limited to children who are currently overweight or obese. Underweight infants and children may also become overweight or obese later in life. While the underlying causes and treatment of underweight vary, lifelong risks for overweight and obesity are closely related to feeding behaviors acquired in early life.

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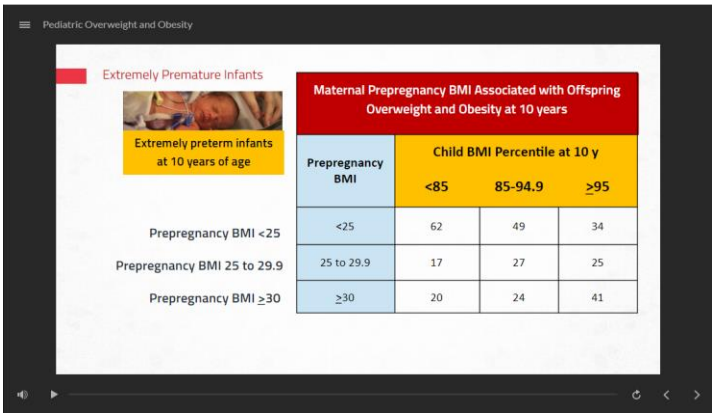
In 2018 Pediatrics published results of the first longitudinal study including more than 250 extremely preterm infants, or those born at less than 34 weeks gestation. By 10 years of age, children born extremely preterm had similar risk profiles for overweight and obesity as children born full term. (11)

Prepregnancy weight and child BMI



Let's compare maternal pre-pregnancy BMI for the 10 year olds in this study.

For children whose BMI was below the 85th percentile at 10 years old:

- 62% had mothers with a prepregnancy BMI (<25),
- 17% had mothers with a prepregnancy BMI between (25 and 29.9) and
- 20% had mothers with prepregnancy BMI greater than (>30).

Notice that well over half of children with a BMI less than the 85th percentile had a mother with a normal or underweight prepregnancy BMI.

For children with a BMI between the 85th and 95th percentile at 10 years old:

- 49% had mothers with a prepregnancy BMI (<25),
- 27% had mothers with a prepregnancy BMI of (25 to 29.9), and
- 24% had mothers with prepregnancy BMI greater than (>30)

In this group of 10-year-olds with a BMI between the 85th and 95th percentile, we see that over half had a mothers with a prepregnancy BMI classified as overweight or obese.

For children whose BMI at or above the 95th percentile,

- 34% had mothers with a prepregnancy BMI (<25),
- 25% had mothers with a prepregnancy BMI of 25 to 29.9, and
- 41% had mothers with prepregnancy BMI greater than 30

In this group of 10-year-olds with a BMI at or above the 95th percentile, we see that 66% had mothers with a prepregnancy BMI classified as overweight or obese, with a significantly higher number of mothers with a prepregnancy BMI of 30 or greater.

These findings show that the likelihood of extremely preterm children to become overweight or obese at 10 years of age was strongly associated with the mothers prepregnancy BMI. The strong association of the mothers prepregnancy weight as a predictor of the child's BMI at 10 years old suggests that providers should focus on healthy lifestyle behaviors. Focusing on routines, feeding behaviors, and self-

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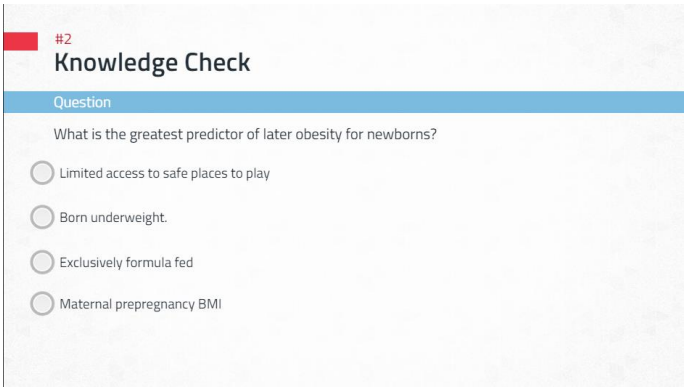
regulation of appetite offers families the best opportunity to reduce the risks of overweight and obesity in early childhood, as well as lifelong risk.



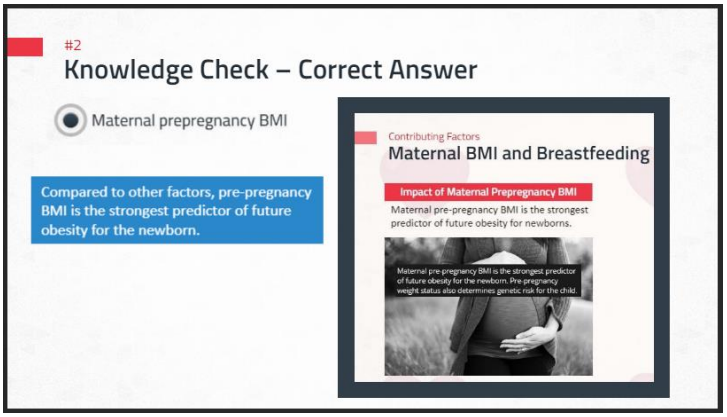
Knowledge Check 2

Let's pause for another knowledge check. Please select the correct answer.

What is the largest predictor of later obesity for newborns?

A. Limited access to safe places to play
B. Born underweight.
C. Exclusively formula fed
D. Maternal prepregnancy BMI

Feedback 2 Correct Response



The correct answer is Maternal prepregnancy BMI. Compared to other factors, pre-pregnancy status is the strongest predictor of future obesity for the newborn.

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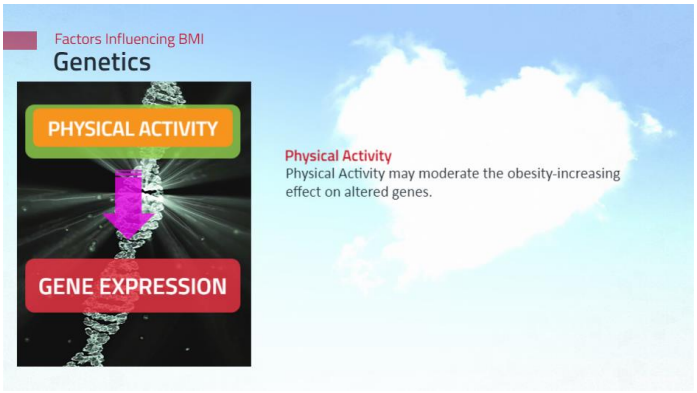
Genetic Factors of Obesity

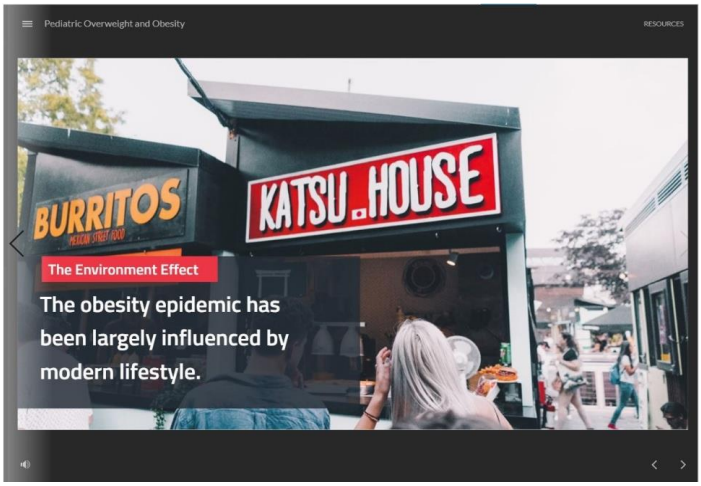


For children, BMI trajectories are programmed by the mother's genetic, hormonal, and behavioral factors during gestation, and continue to affect development after birth. (12)

Strong evidence is accumulating that the environment itself can alter gene expression and influences individual risk of obesity. Influences on genetic expression, also called epigenetics, occur most commonly during gestation, neonatal development, and puberty. Genes seem to carry "memory" of early life experiences, having the potential to trigger the onset of diseases that are hereditary, yet also reversible, later in life. (12)

Evidence demonstrates the role of physical activity in moderating the obesity-increasing effect of gene variants, demonstrating the influence of behavior as a factor.

Genetics vs. Environment



In a comprehensive review of genetic factors related to obesity, the AAP emphasizes that epidemic obesity has been largely influenced by modern lifestyle. (12) This indicates that the spike in obesity rates was largely attributable to the changes in our environment, and the resulting effects on our behaviors.

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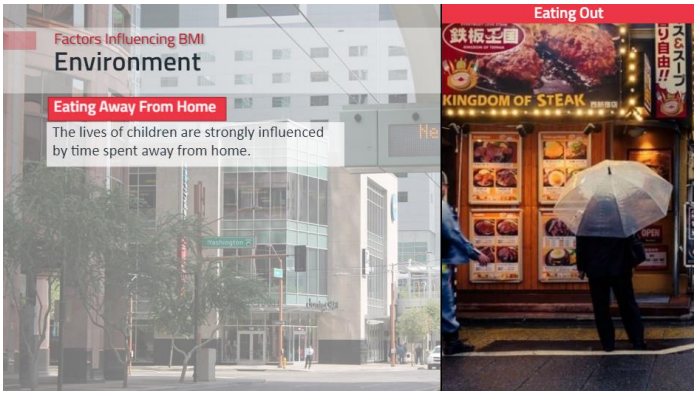
Environmental Factors

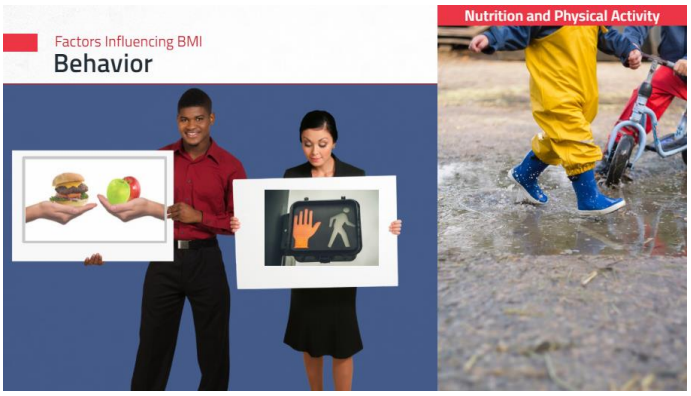
The bigger role of environment also makes sense considering how innovations in methods and the scale of production, distribution, and availability of foods have transformed commerce and consumer habits. Retail venues are now the most common source of foods prepared and eaten at home. Similarly, retail food service venues account for most foods eaten away from home. (9)



In addition to family behaviors and the home environment, the lives of children are strongly influenced by time spent away from home. While away from home, daily meals, snacks and activity are provided by child care centers, schools, and other community centers. Other environmental influences include peer and social supports, marketing and promotion, and policies that determine community design. (10)

AAP addresses the challenges faced by parents in Bright Futures guidelines: “Many parents may not have control over their home environment because of living arrangements or culture or gender roles. Neighborhood and community environments directly support or challenge the well-being of families and the goals that parents have for their children. Special consideration may be needed for immigrant or refugee families, especially in relation to legal status and concerns about deportation and the risk of family separation, which can affect their children’s access to health care and housing.” (13)

Behavioral Factors



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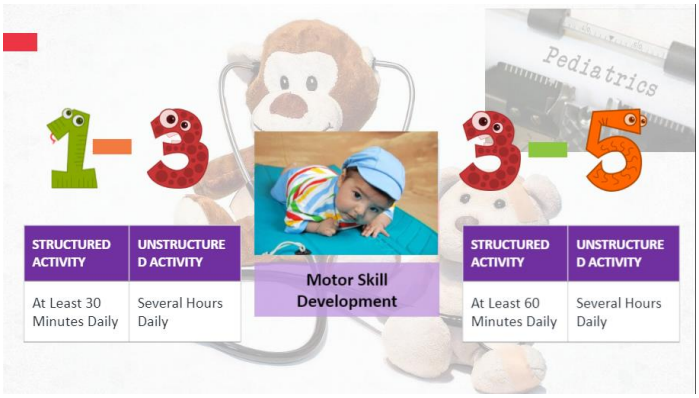
Before we consider the specific role of behavior as a factor, let's reflect for a moment on what we've learned so far. If we consider the rapid rise and prevalence of overweight and obesity for adults and children nationally, we realize that lifestyle behaviors for the overall population have become increasing unhealthy in spite of the increasing public awareness and knowledge in communities about nutrition and physical activity. Improved best practices by providers have not brought positive results for Americans as a whole.

In fact, WIC already provides strong training and education about effective behaviors to promote optimal health for women, infants and children. By acknowledging this disparity between knowledge and outcomes, it becomes clear that discovering opportunities for improvement within the limitations families face is a greater challenge than merely being aware or informed about risks.



Now let's return to the specific role of behavior as a key factor impacting BMIs among infants and children. AAP's physical activity recommendations for infants and children offer guidelines that support the development of bone and muscle strength, balance, coordination, and motor skill development. (13) https://brightfutures.aap.org/Bright%20Futures%20Documents/BF4_PhysicalActivity.pdf

For example, the Bright Futures guidelines for infants promote short periods of active play several times a day, including supervised tummy time. Infants should be given frequent opportunities to practice movement and control by exploring their environment.

Children 1-4 years old should engage in at least 60 minutes of physical activity daily, and up to several hours a day of unstructured physical activity. To support social learning and skill development, toddlers up to 3 years should have at least 30 minutes of structured activity, while children age 3-5 should accumulate at least 60 minutes of structured physical activity each day.

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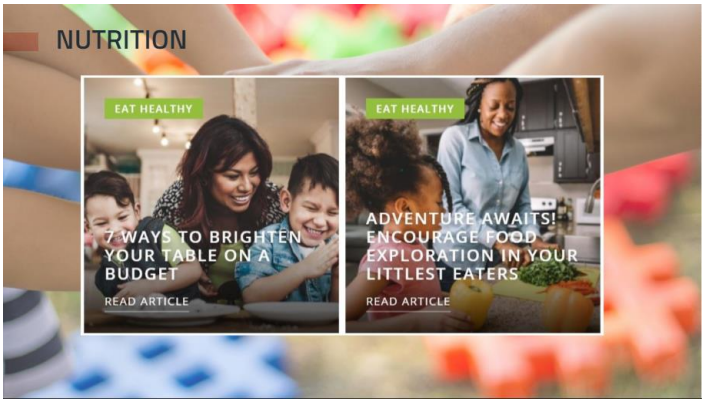
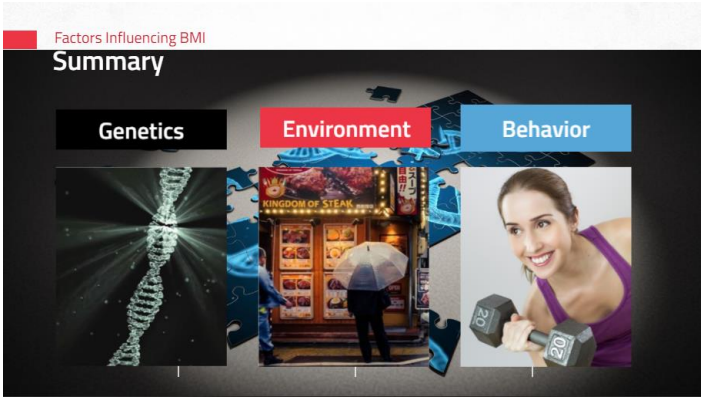


From our perspective as WIC practitioners, we are most familiar with the importance of nutrition, and the importance of providing recommendations that meet the developmental needs of infants and children. We prioritize the nutritional needs of women during pregnancy and postpartum recovery, including the increased needs of breastfeeding women. Having already implemented recommendations provided by AAP, USDA, and the American Congress of Obstetricians and Gynecologist (ACOG) for the nutritional needs of WIC participants, we will not discuss those in detail at this time. Instead, our focus will be what interventions and techniques are most successful for promoting behavior changes that improve nutrition and physical activity for participants.



Summary

To summarize, individual predisposition for obesity is determined by heredity, influenced by environment, and can be moderated by behavior.

Gene expression is influenced by the mother's behavior during pregnancy, by environmental conditions during early childhood, and by physical activity throughout the lifespan.

And compared to inherited factors such as genetic predisposition, lifestyle behaviors have a significant impact on hereditary factors that may be reversible.

Knowledge Check 3

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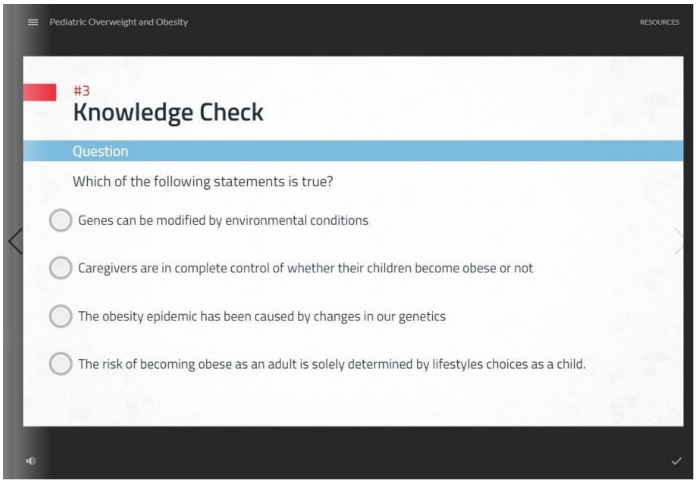
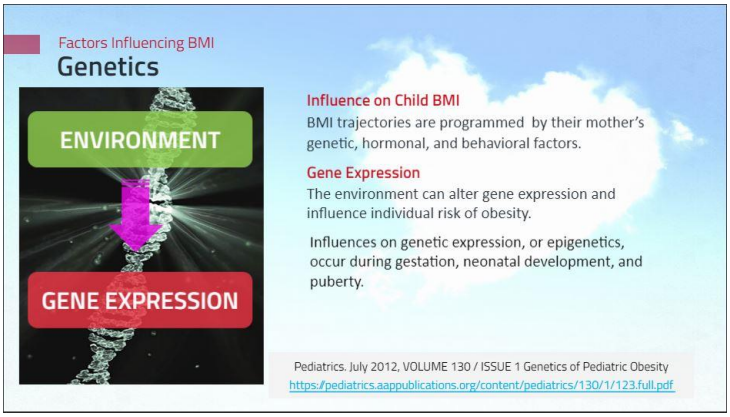


Let's pause for another knowledge check. Please select the correct answer.

Which of the following statements is true?

A. Genes can be modified by environmental conditions.
B. Caregivers are in complete control over whether their children become obese or not.
C. The spike in US obesity rates was due to changes in our genetics.
D. The risk of becoming obese as an adult is solely determined by lifestyle choices as a child.

Feedback 3 Correct Response



The correct answer is that genes can be modified by environmental conditions.

- As we learned earlier, the study of epigenetics reveals the greatest influences on genetic expression are during gestation, neonatal development, and puberty.

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Module 3: Interventions

Research and Interventions for Children who are Overweight and Obese (birth to five years)

Introduction

Relatively few interventions have targeted WIC aged-children (early childhood up to age five) in regard to BMI. In this module we'll review scientific interventions for children up to age 5 to see if there are any evidence-based recommendations that might be applicable for the WIC program.

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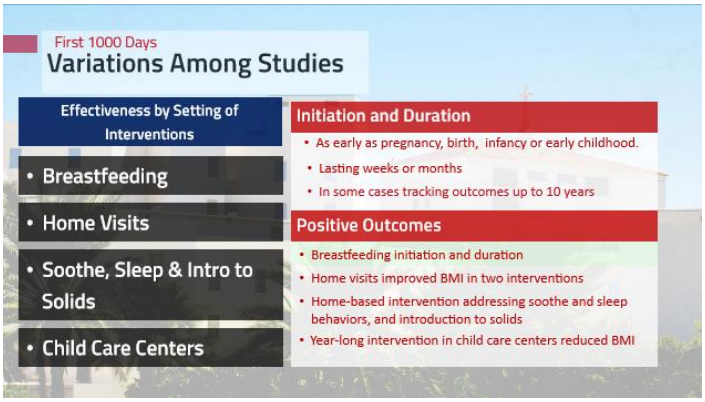
The First 1000 Days

The first 1,000 days of life—conception through age 24 months—represent an important period for the development and thus prevention of childhood obesity.

Evidence from 'Interventions for Childhood Obesity in the First 1,000 Days', a Systematic Review, a meta-analysis of 34 studies evaluating children's nutrition from conception through 2 years of age, indicates that influences during pregnancy and infancy may alter lifetime risk of obesity. (14)



Initiation and duration of interventions varied, beginning as early as pregnancy and lasting weeks or months, and in some cases tracking post-intervention outcomes up to 10 years. (14)

The limited number of positive outcomes included:

- Improvements in breastfeeding initiation and duration.
- Home visits improved BMI in two interventions.
- A home-based intervention addressing soothe and sleep behaviors and introduction of solids showed lower weight-for-length among the intervention group at 12 months.
- A year-long intervention targeting child care centers showed greater reductions in BMI compared to the control group.

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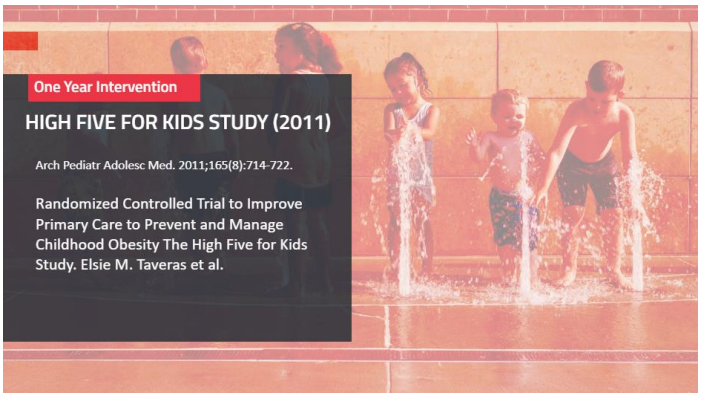
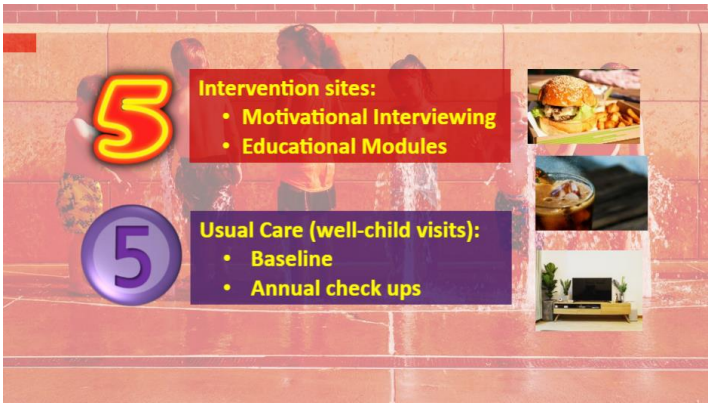
The summary conclusion of this review was, “The finding of only a small number of effective early-life interventions for childhood obesity prevention is not uncommon.” Said another way, of all the studies investigated as part of this meta analysis, very few were effective in preventing childhood obesity.

Interventions for 2-5 year olds



High Five for Kids Study (2011)

The High Five for Kids Study was a year-long intervention in the primary care setting, and the first known randomized controlled trial addressing obesity among preschool-aged children. Ten pediatric practices recruited children 2-6 years old with a BMI above the 85th percentile. (15)



Five practices offered the intervention, and the other five practices provided usual care.
Intervention families received motivational interviewing in addition to educational modules targeting television viewing, fast food and intake of sugar-sweetened beverages.
Non-intervention families received usual care visits (initial visit at baseline followed by annual well-child care visits). (15)

Results showed the additional motivational interviewing sessions for the intervention group did not impact BMI compared to the usual care group. However, the intervention group showed reduced intakes of fast food and sugar-sweetened beverages, and reduced television viewing time.
In summary, motivational interviewing did not impact BMI for preschool children, but did result in improvements in health behaviors. (15)

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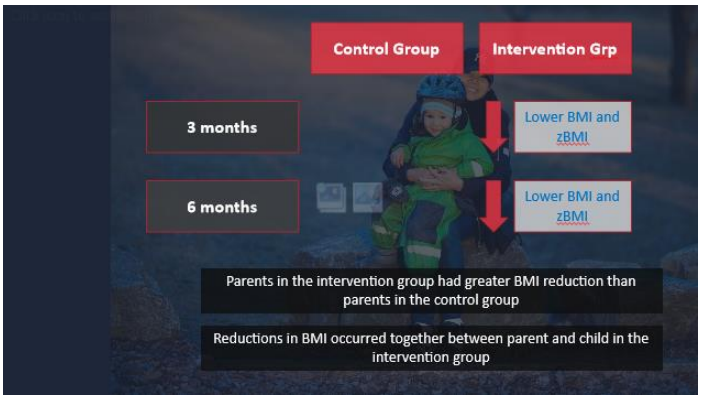
Overweight parent-child pairs (2012)

An intervention published in 2012 studied overweight/obese parents and their overweight/obese children (aged 2-5 years). Four large pediatric practices recruited child-parent pairs with a BMI above the 85th percentile. In all, 96 child-parent pairs were recruited. (16)

Over six months, both the intervention and control groups participated in 10 group meetings and 8 calls providing education about diet (serving sizes, daily servings, age-appropriate energy intakes), physical activity, and sedentary behaviors. Each group was also given child weight loss goals and physical activity goals.

The intervention provided additional one-on-one support for parents using education about parenting-related techniques and strategies for facilitating lifestyle changes. Intervention parents also engaged in active play with their child at least 10 minutes each day.



Pediatricians checked in with both groups at 3-month and 6-month wellness visits. Children in the intervention group showed greater reductions in BMI and z-BMI decreases at 3 and 6 months compared with the control group. Parents in the intervention group also had a greater BMI reduction compared with parents assigned to the control group. BMI changes positively correlated between child-parent pairs. (16)

In summary, the additional parenting-related techniques and strategies for lifestyle changes resulted in greater reductions of BMI among child-parent pairs.

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Optional button for more information: What is a zBMI score?

A z-score is the deviation of the value for an individual from the mean value of the reference population divided by the standard deviation for the reference population.
https://www.cdc.gov/growthcharts/growthchart_faq.htm

For example, consider BMI scores for all the children in a given population of males and females of different ages. BMI accurately reflects weight as a function of the squared height. But we also know that reference populations of males and females show slightly different growth patterns by sex, with key differences related to age.

By applying calculations based on the expected changes in BMI due to age and sex, BMI values are transformed into zBMI scores that better reflect differences independent of age and sex.

In this study, the observed reduction in both BMI and zBMI scores among the intervention group strengthens the case that changes in weight were not only different from the control group, but also greater than expected for the respective age and sex of the participants.

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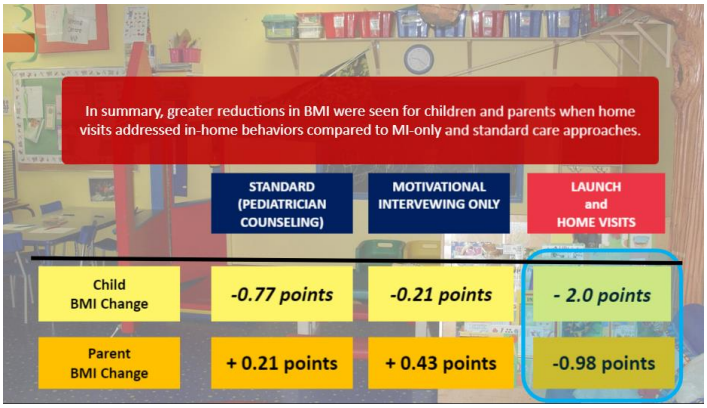
LAUNCH Study (2018)

The LAUNCH study (Learning about Activity and Understanding Nutrition for better Child Health) recruited families of children aged 2-5 years with BMI at or above 95th percentile from 27 pediatrician offices.

LAUNCH curriculum emphasizes eating more fruits and vegetables, decreasing high fat foods and eating out, eliminating or limiting sweet beverages, teaching portion sizes for preschoolers, and increasing physical activity. LAUNCH also trains parents to use child behavior techniques and environment stimulus control in home visits. (17)



Three treatment groups were compared for a total of six months. One group received standard care only, a second group received motivational interviewing (MI) only, and the third group received the LAUNCH curriculum which also included home visits. All three groups participated in weekly sessions for three months, then biweekly sessions for another three months.(17)

Over the six month study children in the LAUNCH group gained an average of 0.67 kg (1.5 lbs), with a mean BMI decrease of 2.0 percentile points. LAUNCH parents had a BMI decrease of 0.98 %ile in the same period.

Children in the MI and control groups gained over 2kg (4.4 lbs) over six months, with BMI decreases of 0.21 and 0.77 percentile points. Parents' BMI increased by 0.43 %ile points in the MI group and 0.21 %ile points in the control group. (17)

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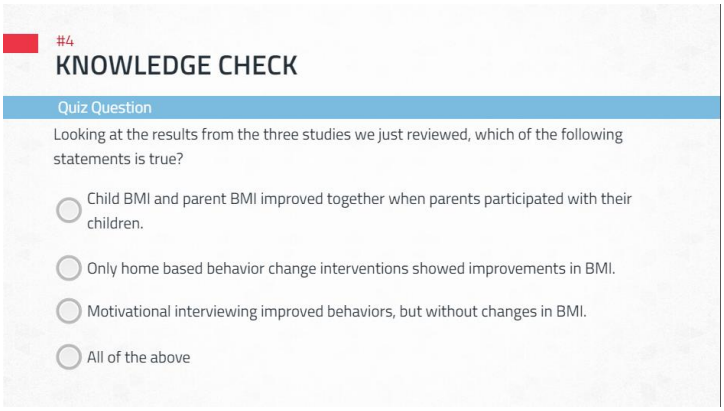
In summary, greater reductions in BMI were seen for children and parents when home visits addressed in-home behaviors compared to MI-only and standard care approaches. (17)

Knowledge Check 4



Looking at the results from the three studies we just reviewed, which of the following statements is true?

A. Only home-based behavior change interventions showed improvements in BMI.
B. Child BMI and parent BMI improved together when overweight and obese parents participated with their children.
C. Motivational interviewing resulted in positive behavior changes, yet no improvements in BMI occurred during the study interval. Standard care approaches were the least effective.
D. All of the above

Feedback 4

The correct answer is all of the above.

- In a six month study motivational interviewing significantly improved feeding behaviors, but didn't result in BMI changes.
- BMI improved in home-based interventions, and when children participated with parents they both showed improvements in BMI.

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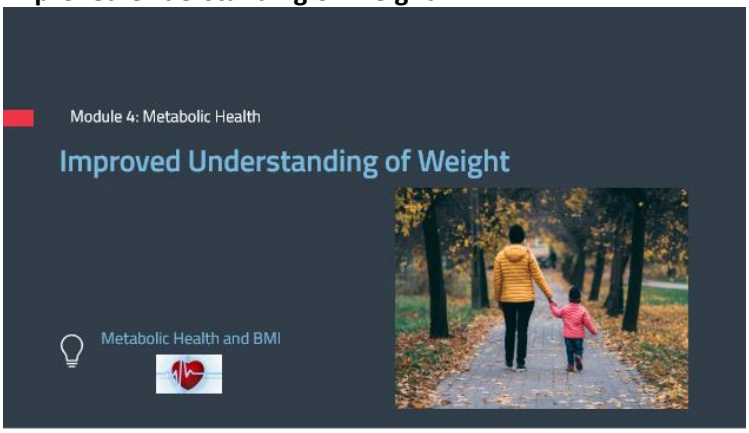
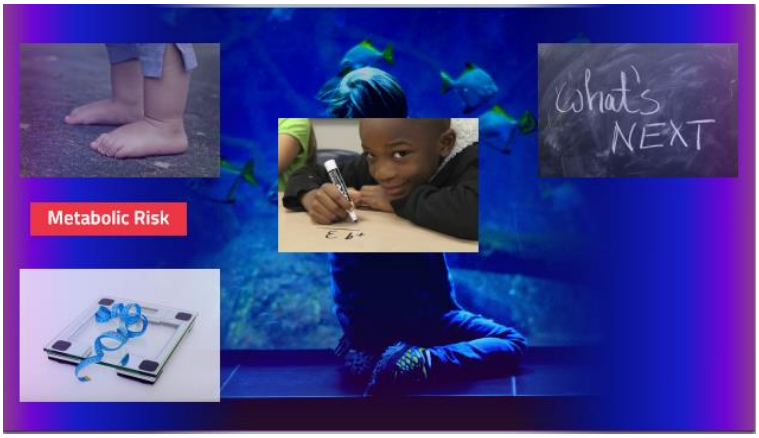
Module 4: Metabolic Health

Improved Understanding of Weight



In the first three modules, we reviewed data on how widespread the rapid increases in BMI among children has become, the complexity of contributing factors, and how few interventions are able to successfully reduce BMIs among participants.



Considering the scale of the problem and the barriers involved, you may be wondering what (if anything) can be done to actually help WIC participants reduce risks related to higher BMIs. In our efforts to be more effective we need to take a step back and take a closer look at the potential outcomes for children classified in the overweight or obese categories once they reach adulthood.

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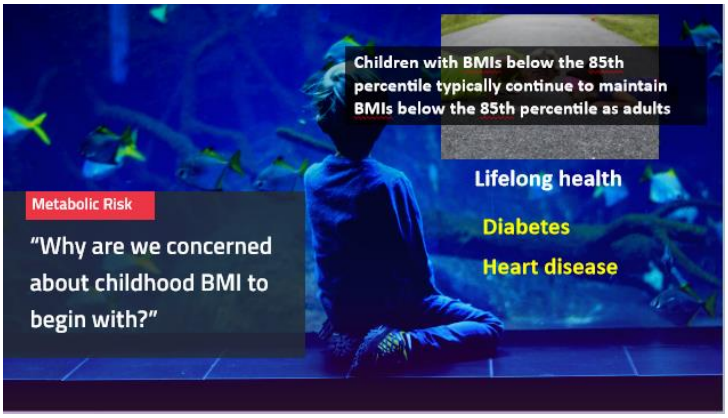

So, let's begin with the basic question "Why are we concerned about childhood BMI to begin with?" Most of all, we want children to enjoy good health over a lifetime. Children with BMIs below the 85 percentile typically continue to maintain BMIs below the 85th percentile as adults, which puts them at a lower risk of developing chronic health conditions such as diabetes and heart disease compared to others with higher BMIs.

So our goal is a simple as identifying children with higher BMIs to reduce their lifelong risk, right? Well, it's really not quite that simple. And to explain, let's talk about metabolic health.

Metabolic Health

There are several measurements that are often collected to help determine an individual's metabolic health. An individual is considered metabolically healthy if they have healthy measurements of blood pressure, triglycerides, HDL, and fasting blood glucose. (18)

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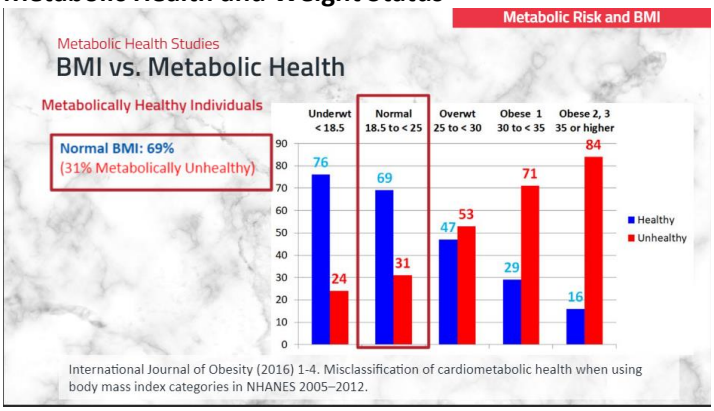
Metabolic Health and Weight Status



It's easy to assume that people who are normal weight are metabolically healthy, and people who are overweight or obese are metabolically unhealthy. However, the research tells us something quite different. For example, in this graph we can see the results from a large study that reviewed the data of 40,420 participants.

First we can see that among normal weight individuals

- 69% of them were metabolically healthy, and 31% are metabolically unhealthy.
- Among overweight individuals, 47% of them were metabolically healthy and 53% were metabolically unhealthy. .
- Among obese type 1 (which represents individuals with a BMI between 30 and 34.9), 29% of them were metabolically healthy and 71% were metabolically unhealthy.
- Lastly, among obese type 2 and 3 (representing individuals with a BMI of 35 and above), 16% of them were metabolically healthy and 84% were metabolically unhealthy.

It's easy to see based from this chart we would be unable to predict who is metabolically healthy based on their BMI alone. (18) http://www.dishlab.org/pubs/Misclassification_Cardiometabolic.pdf

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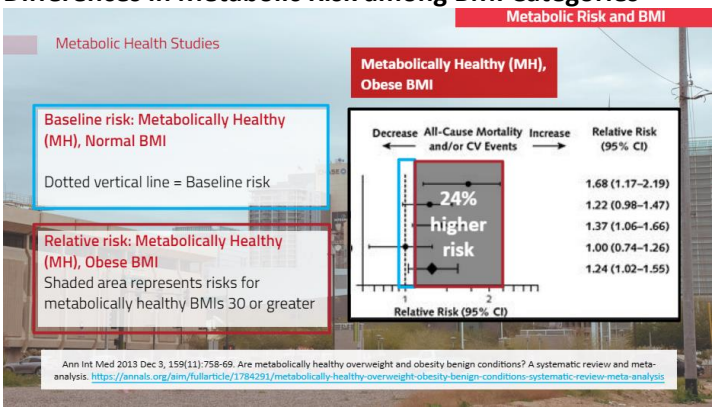
Differences in Metabolic Risk among BMI Categories

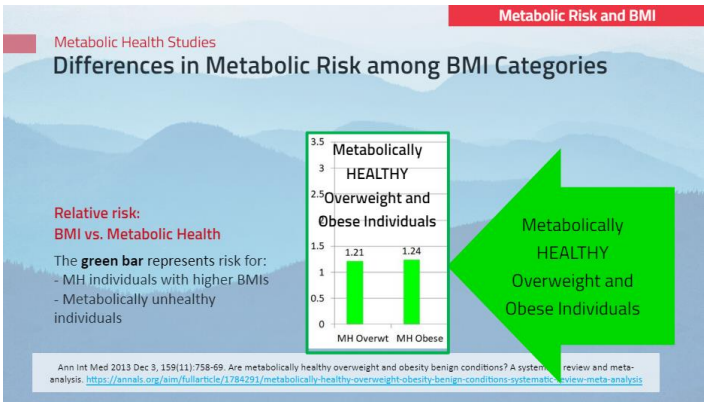


What's especially important to point out is that if an individual is metabolically unhealthy, regardless of their BMI, they are at a much higher risk of developing cardiorespiratory and other chronic illnesses.

To give us an example of this, let's look at the results from a large meta-analysis which combined the data from eight studies that observed cardiovascular events and all-cause mortality among 61,386 individuals that were followed for more than 10 years. (19) [https://annals.org/aim/fullarticle/1784291/metabolically-healthy-overweight-obesity-benign-conditions-systematic-review-meta-analysis]

In the following chart, we'll use metabolically healthy, normal weight individuals as our baseline. Any groups that we compare to this group will be plotted in reference to the dotted vertical line. Results plotted to the right this line would have an increased risk in all-cause-mortality or other cardiovascular events.

First let's look at metabolically healthy individuals. So, compared to metabolically healthy, normal weight individuals, metabolically healthy overweight individuals had a 21% increased risk, and metabolically healthy obese individuals had a 24% increased risk in all-cause-mortality or other cardiovascular events. (19)



Now let's compare these results with metabolically unhealthy individuals. Once again, the baseline risk represents metabolically healthy, normal weight individuals.

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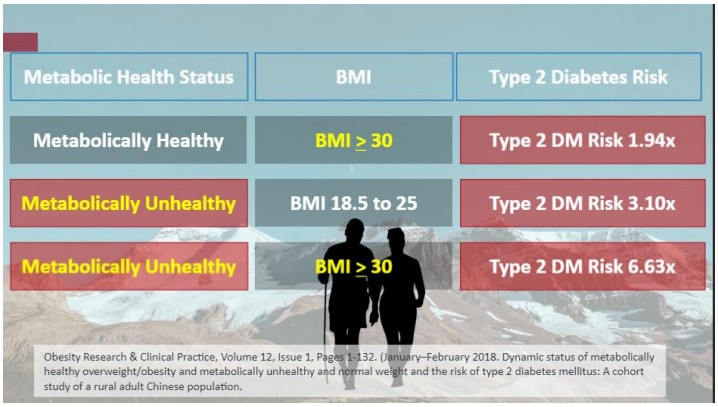
- For metabolically unhealthy normal weight individuals, the risks for all cause mortality or cardiovascular events more than tripled.
- For metabolically unhealthy overweight individuals and metabolically unhealthy obese individuals, the risks were 2.7 times and 2.65 times as great respectively.
- Based on these data it's easy to see why an individual's metabolic health has a much greater impact on cardiovascular disease and early death than their BMI does.

For metabolically unhealthy overweight individuals and metabolically unhealthy obese individuals, the risks were 2.7 times and 2.65 times as great respectively. (19) Based on these data it's easy to see why an individual's metabolic health has a much greater impact on cardiovascular disease and early death than their BMI does.

Metabolic Health and Gestational Diabetes Risk



In a large population diabetes risk was compared with BMI and metabolic risk to investigate the impact of each variable independently.

In a study of over 11,000 Chinese adults, type 2 diabetes risk nearly doubled for metabolically healthy obese individuals compared with metabolically healthy normal weight individuals. (20)

- Risk of type 2 diabetes more than tripled for metabolically unhealthy normal weight individuals, compared with the metabolically healthy, normal weight group.
- And Type 2 diabetes risk increased over 6 times for metabolically unhealthy obese individuals.
- So for this group, metabolic health was more significant for diabetes risk than BMI alone. And among metabolically unhealthy individuals, having an elevated BMI increased risks even more.
- Once again we see that poor metabolic health predicts the development of type 2 diabetes much better than BMI status. And note this applies when comparing individuals of different BMI categories, as well as comparisons among individuals of the same BMI category.

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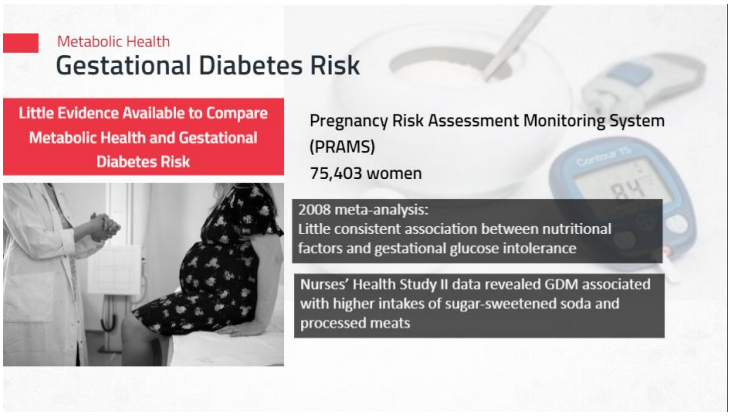

It's natural to wonder about the relationship of metabolic health and risk of diabetes, especially risk of gestational diabetes in pregnancy.

While it remains challenging to find large studies comparing metabolically healthy and metabolically unhealthy women during pregnancy, there are some useful insights from other studies comparing prepregnancy weight and diabetes.

A study across 26 states and New York City (n=75,403 women) using data from the Pregnancy Risk Assessment Monitoring System (PRAMS) offers helpful insights. Regardless of a woman's prepregnancy weight, weight gain both during and between pregnancies led to increased gestational diabetes risk. However, the relationship between diet quality and GDM is less certain. (21)

A 2008 meta-analysis showed little consistent association between nutritional factors and gestational glucose intolerance. Two large Nurses' Health Study II publications revealed higher prepregnancy intakes of sugar-sweetened soda and processed meats were associated with an increased risk of GDM, yet studies examining dietary factors during pregnancy have not reported associations. (22)

Physical activity during pregnancy also influences risk of gestational diabetes risk, as shown in a 2020 Committee Opinion published by the American College of Obstetricians and Gynecologists. They emphasize that although physical inactivity is an independent risk factor for gestational diabetes, studies have shown that exercise during pregnancy can lower glucose levels in women with gestational diabetes. (23)

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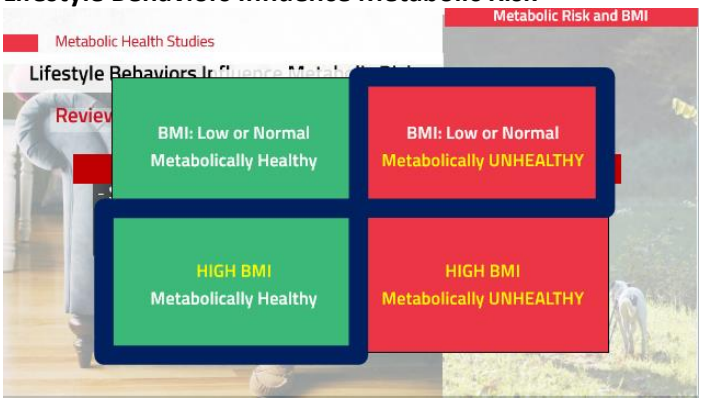
Lifestyle Behaviors Influence Metabolic Risk

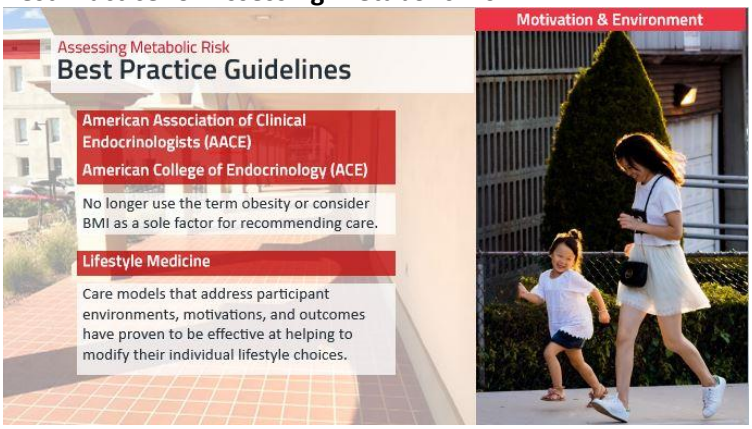


You may be wondering at this point how it's possible for an overweight or obese person to be metabolically healthy, and how normal weight individuals can be metabolically unhealthy. However, these unexpected differences are strongly related to lifestyle behaviors.

For example, in a recent review of 18,880 study participants, researchers noted that lifestyle behaviors such as smoking, less physical activity, and more TV watching were very closely associated with poor metabolic health, completely independent of BMI. (24)

Said another way, individuals with unhealthy habits, were significantly more likely to have poor metabolic health, regardless of whether they were obese or not.

Best Practice for Assessing Metabolic Risk



It's easy to see from these recent discoveries, that our healthcare system would benefit greatly from focusing significantly more time and attention to improving metabolic health, and significantly less time focusing on whether a person is overweight or obese.

As an example of our evolving understanding of this concept, the American Association of Clinical Endocrinologists (AACE) and American College of Endocrinology (ACE) no longer use the term obesity or consider BMI as a sole factor for recommending care. They instead focus on lifestyle medicine for prevention at both the population and patient level. (25)

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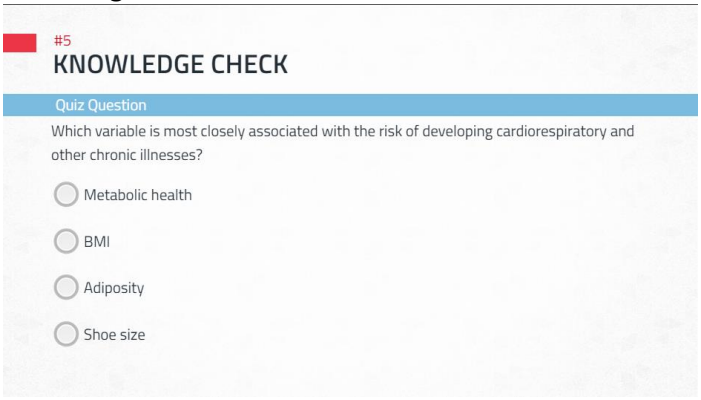
Care models that address participant environments, motivations, and outcomes have proven to be effective at helping to modify their individual lifestyle choices (such as improvements in diet, and increases in physical activity) which in turn results in improvements in metabolic health.

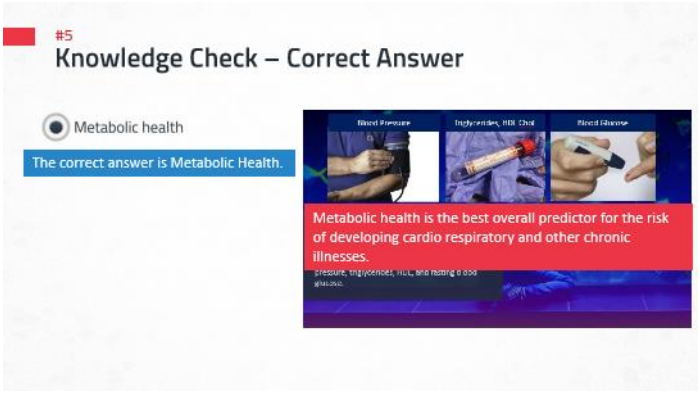
Knowledge Check 5



Which variable is most closely associated with the risk of developing cardiorespiratory and other chronic illnesses?

A. Metabolic Health
B. BMI
C. Adiposity
D. Shoe size

Feedback 5



The correct answer is Metabolic Health.

Compared to other factors, metabolic health is the best overall predictor for the risk of developing cardiorespiratory and other chronic illnesses.

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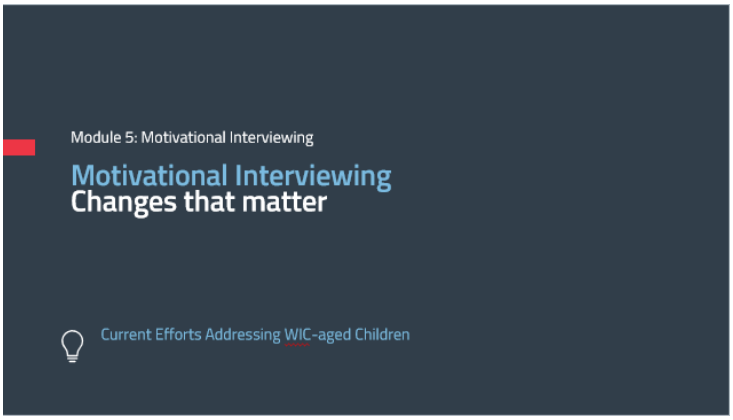
Module 5: Motivational Interviewing

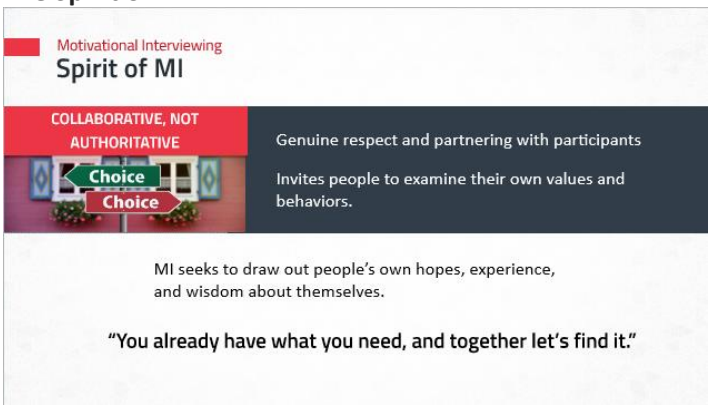


MI as an effective approach

One of the most effective tools ever developed to help participants improve their lifestyle choices is Motivational Interviewing or MI. As you'll recall, Motivational interviewing (MI) was also mentioned in some of the studies we looked at earlier.

It's important to note that even though MI wasn't shown to decrease BMI, it was effective in helping to promote healthy behavior changes among those in the intervention groups, which as we know now, may have resulted in important improvements in metabolic health.

The Spirit of MI



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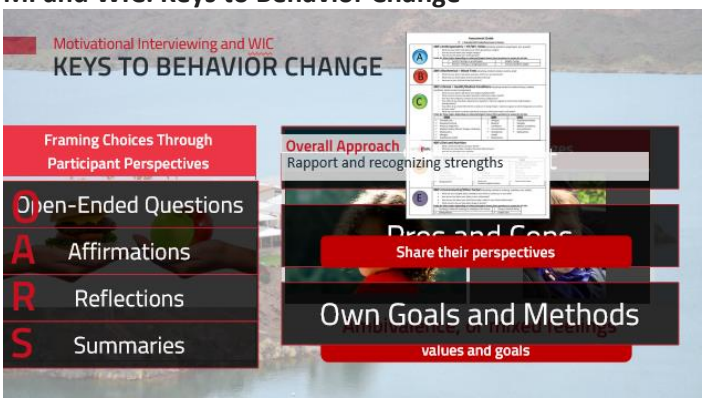
A key difference of the MI approach is the relationship between counselor and client, which is collaborative instead of authoritative. MI emphasizes the importance of genuine respect and partnering with participants. It invites people to examine their own values and behaviors. (26)

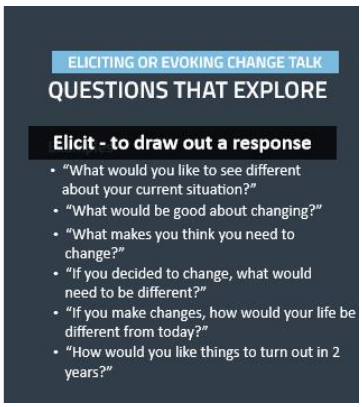
Instead of trying to convince or argue, MI seeks to draw out people's own hopes, experience, and wisdom about themselves. As the creator of MI, William R. Miller, says, "You already have what you need, and together let's find it." (26)

MI and WIC: Keys to Behavior Change



MI describes both an overall approach, and includes specific techniques to support the rapport and interaction between counselor and participant. Open-ended questions, Affirmations, Reflections, and Summaries are examples of MI techniques which promote behavior change. OARS skills are an important part of MI, and in the WIC setting, using them has become a familiar approach to assessment by encouraging participants to share their perspectives, affirming their skills and experience, and framing their responses in terms of their own values and goals. Let's now expand on that knowledge base and discuss the other main components of MI.

It's very common for there to be advantages and disadvantages to making a change, and it can be difficult for participants to know what to do. The greatest value of motivational interviewing is helping participants explore their ambivalence, or mixed feelings, about making these kinds of changes. MI offers strategies for guiding participants as they self-reflect, and discuss the pros and cons of making changes, helping them to develop their own goals and methods for reaching them.



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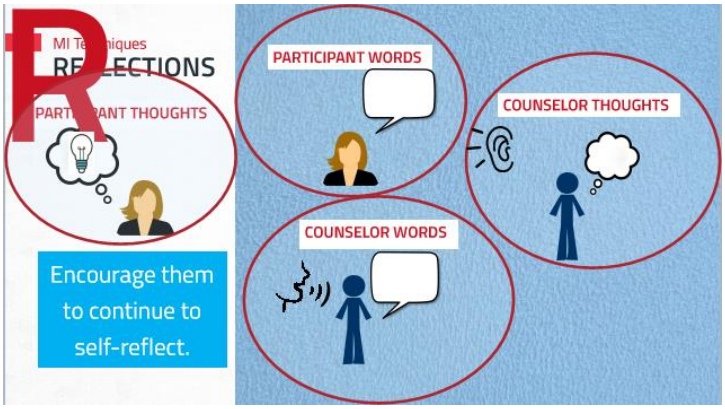
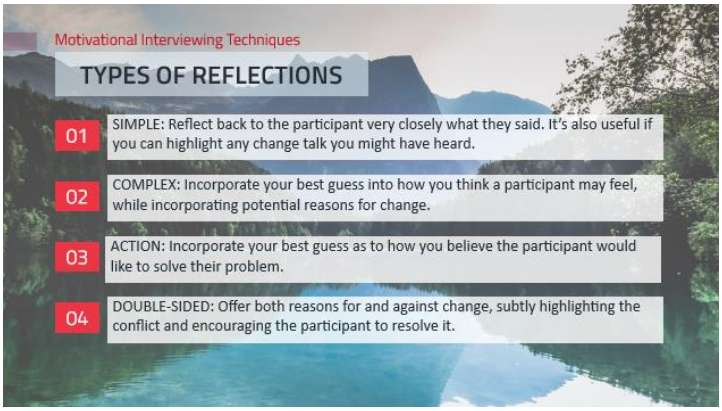
Also critical to the concept of MI is change-talk, which hints at the possibility of changing a behavior. Phrases such as, “If I were to”, or “I could try”, or “maybe I will” are examples of change-talk which signal opportunities to explore behavior change. Motivational Interviewing counselors try to elicit these types of phrases by asking questions that help participants compare their current behavior and motivations. Here are some examples of questions that you could use to elicit or evoke change talk:

- “What would you like to see different about your current situation?”
- “What would be good about changing…?”
- “What makes you think you need to change?”
- “If you decided to change, what would need to be different?”
- “If you make changes, how would your life be different from today?”
- “How would you like things to turn out in 2 years?” (26)



Now let’s focus in on the “R” in OARS for a moment. You already know that reflections are a great way to show participants that you’ve been listening. By pausing to emphasize a thought you’ve heard them express, you encourage them to continue to self-reflect. Choosing a reflective statement that captures an idea or words expressed by the participant, helps the participant to clarify an idea or explore useful connections.



Now let’s talk about a few different kinds of reflections. There are many different kinds of reflections, but we’ll look at four today.

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- There are **simple reflections** which reflect back to the participant very closely what they said. It's also useful if you can highlight any change talk you might have heard when giving simple reflections.
- **Complex reflections** are similar to simple reflections, however, complex reflections incorporate your best guess into how you think a participant may feel.
- **Action reflections** incorporate your best guess as to how you believe the participant would like to solve their problem.
- Lastly, **double sided-reflections** offer both reasons for and against change, subtly highlighting the conflict and encourage the participant to resolve it.

Let's look at some examples of how each type of reflection could be used to respond to the same statement. For example, if a participant says "I keep trying to offer different foods, but he won't touch any of them."

- A simple reflection could be "You're consistently offering different kinds of foods."
- A complex reflection could be "So it sounds like it's important to you that he has a varied diet."
- An action reflection could be "So you're looking for a way to increase the variety of foods in his diet."
- A double-sided reflection could be "So on the one hand, it's been difficult to get him to try different foods, but on the other hand, you'd like to see him expand his diet."

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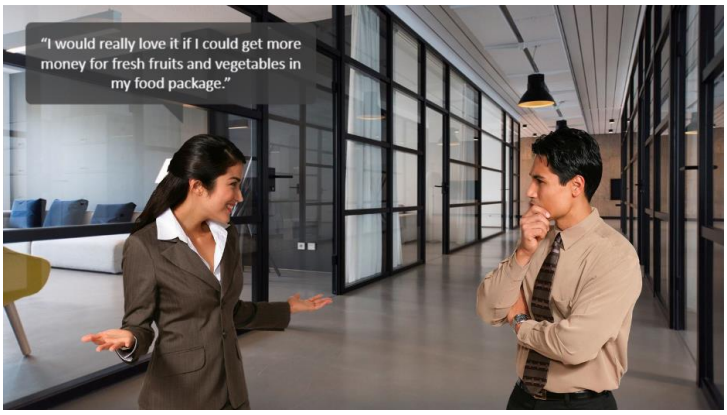
One other useful recommendation of MI is to use the explore-offer-explore technique. Whenever you reach a point in your conversation where you feel like it would be helpful to provide the participant with some information or ideas, first "explore" by asking what the participant has heard or would like to know. Then, with their permission, "offer" them your ideas. Immediately after sharing, "explore" again by asking if your idea will work for them.

- Audio for explore: "It sounds like your busy schedule makes it challenging to plan healthy meals and snacks. What ideas have you heard to reduce the time it takes to prepare meals?"
- Audio for offer: "Can I share an idea that works for other families? Some families plan two home-cooked meals each week that make enough to save and store for later. This way they can prepare four meals each week without spending as much time in the kitchen. And it also gives them more time for family meals during the week. I can offer some recipes to serve leftover foods in different ways."
- Audio for explore: "How do you see meal prepping working for your family?"



Here's an example of what that may look like. A participant may say something like, "I would really love it if I could get more money for fresh fruits and vegetables in my food package."

This would be a great opportunity to use the explore-offer-explore technique to find the best way to navigate options you can offer with the participant. Click on the buttons labeled a, b, and c below in order to see an example of how this approach might be used in this situation.

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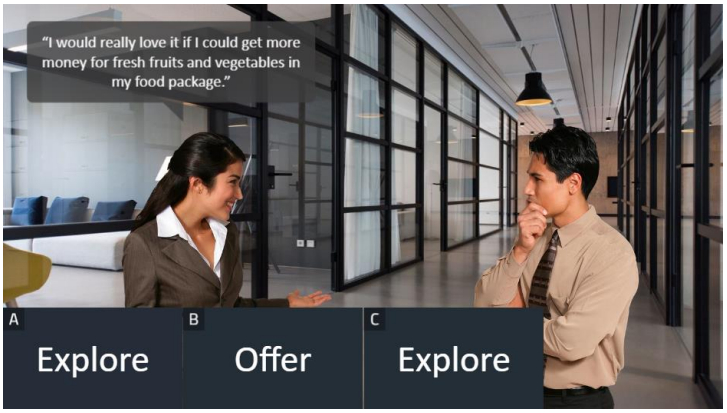

A. Explore
   Participant : "I would really love it if I could get more money for fresh fruits and vegetables in my food package."
   Counselor : "Well unfortunately there isn't any way for me to increase your food package. I know you mentioned you were also receiving SNAP, what have you heard about the Double Up Food Bucks Program?"
   Participant: "What is that?"

B. Offer
   Counselor: "Other moms who are also on SNAP told me about a program called Double Up Food Bucks that allows them to get an additional dollar to spend on fresh fruits and vegetables for every dollar spent on eligible SNAP foods."

C. Explore
   Counselor: "How do you feel about giving that a try?"
   Participant: "We should be doing that!"
   Counselor: Can I give you more information about the Double Up Food Bucks Program?
   Participant: "Yes, how do I apply?"

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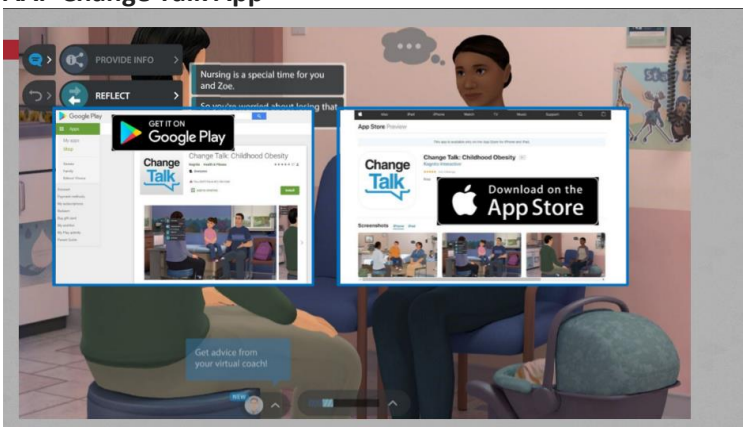
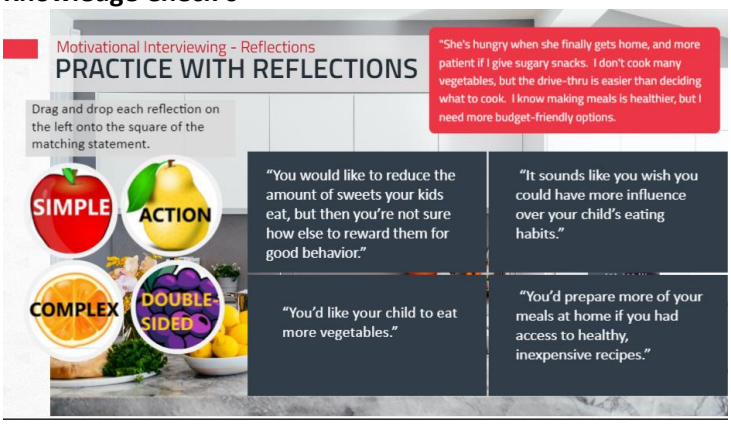
AAP Change Talk App



If you're interested in expanding your MI skills, the American Academy of Pediatrics has developed an interactive training simulator called Change Talk. Through interactive role playing simulations, you'll help caregivers resolve complex situations related to lifestyle modifications and pediatric weight. The phone application version of Change Talk can be downloaded for free via both the Google Play and iTunes stores, or the online version can be accessed by visiting the resources tab of this course https://simulations.kognito.com/changetalk/?dly=20). (28)

Knowledge Check 6



Match each of the types of reflections in the round stickers on the left, with the statement it describes on the right. Hover your mouse or click the blue box at the top of the screen to replay the original statement.

A. Simple
B. Complex
C. Action
D. Double-sided

1. __ "So on the one hand, you'd like to reduce the amount of sweets your kids eat, but on the other hand you're not sure what else would work to reward your them for good behavior."
2. __ "It sounds like you wish you could have more influence over your child's eating habits."
3. __ "You'd like your child to eat more vegetables."

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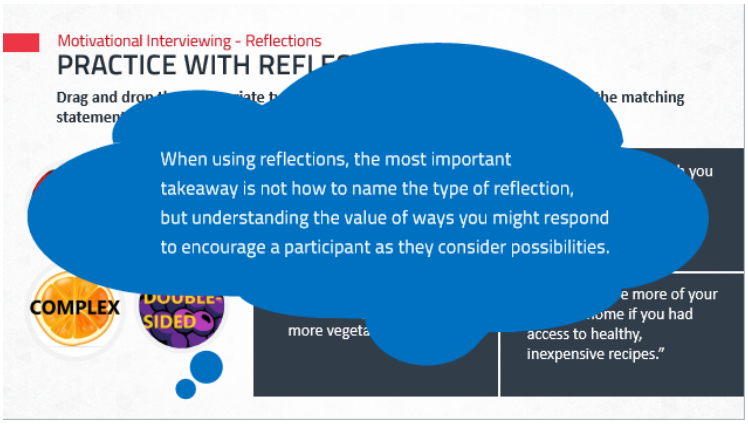
4. __ “You’d prepare more of your meals at home if you had access to healthy, inexpensive recipes.”

Feedback 6



Double-sided: “You would like to reduce the amount of sweets your kids eat, but then you’re not sure how else to reward them for good behavior” brings attention to the desire to reduce sweets, but the conflicting motivation to reinforce good behavior, so a double-sided reflection addresses each concern.

Simple: “You’d like your child to eat more vegetables” brings attention to a key motivation in the mom’s own words.

Complex: “It sounds like you wish you could have more influence over your child’s eating habits” frames mom’s motivation about vegetable intake as a reflection of a more basic motivation about the

Action: “You’d prepare more of your meals at home if you had access to healthy, inexpensive recipes.”

The most important takeaway is not naming the type of reflection, but understanding the value of ways you might respond to encourage a participant as they consider possibilities.

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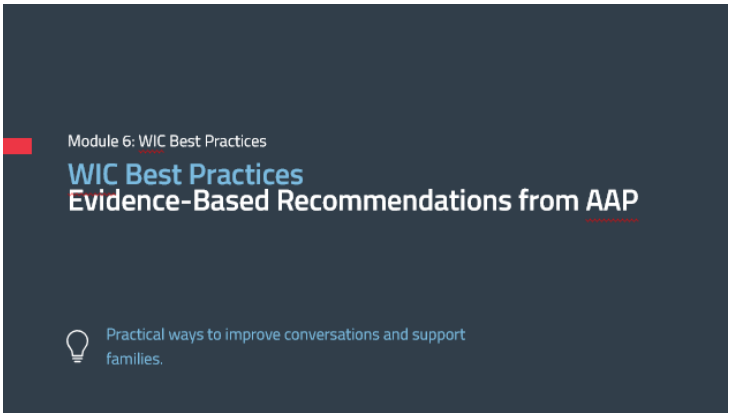
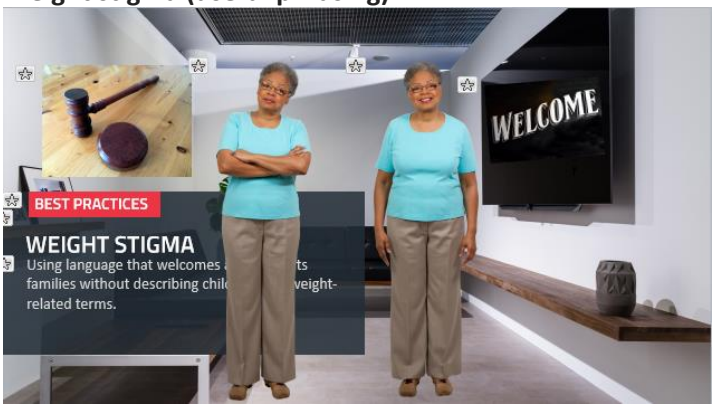
Module 6: WIC Best Practices



Interacting with families

In addition to using MI techniques, there are several other best practices to keep in mind when helping the caregivers of overweight or obese children make lifestyle modifications. In this module we'll look more closely at the AAP Bright Futures recommendations for engaging families about sensitive topics such as weight stigma and feeding behaviors.

Weight stigma (useful phrasing)



First off, you play an important role in either stigmatizing or welcoming patients and families with obesity.

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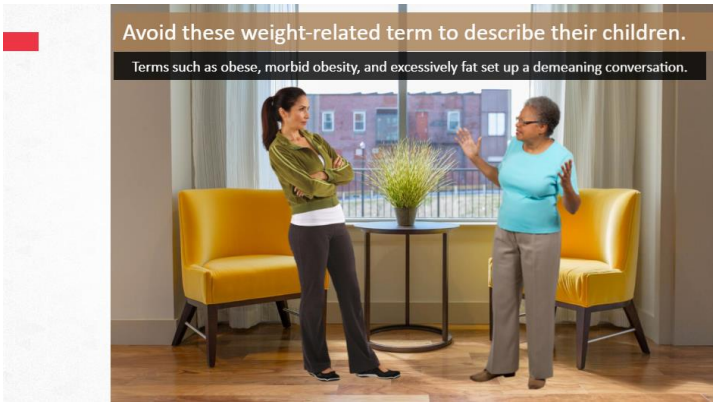

Therefore, it's important to note that whenever you're assisting caregivers with children who are classified as overweight or obese, not to use these weight-related term to describe their children. Terms such as obese, morbid obesity, and excessively fat set up a demeaning conversation. (29, 30)

Here are some useful questions to ask when discussing growth or weight:

- "What have you noticed about [child's name]'s growth?"
- "What has the doctor said about [child's name]'s growth?
- "Do you have any concerns about healthy growth and weight for your children?
- "What aspect of growth or weight would you like to discuss?"

Family Diversity and Parent-centered approaches (useful phrasing)

Now let's talk about Family Diversity. "Just as every child is different, so is every family." Improving our awareness of family diversity reduces unintentional bias and misperceptions we may bring as we begin conversations.

Families can include:

- One child and one parent or guardian
- Several children plus parents or guardians who range in age from adolescents to senior citizens
- Extended families, foster families, adoptive families, or blended families with stepparents and stepchildren. (13)

Parents can be:

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- Married or unmarried couples
- Single parents
- Parents who live apart and share child-rearing responsibilities
- Opposite-sex or same-sex couples

In some families, grandparents play a central role in the daily care of young and growing children. (13)

The family unit can be relatively static, or undergo changes if parents divorce or remarry or if outside caregivers change. Families also can include a parent or caregiver who is of a different racial or ethnic group than the child." (13) [AAP, Bright Futures: Guidelines for Health Supervision of Infants, Children, and Adolescents, 4th Edition]

AAP: **"Two themes common to all families are that parents want the best for their children and significant change or stress that affects one family member affects all members."** Taking a positive approach in our partnership with families builds rapport and confidence.

Establishing a relationship with a family involves open inquiry about key family members in the child's life and identification of parents, co-parents, and extended supports.
The health care professional and family form a partnership in the medical home that is based on respect, trust, honest communication, and cultural competence." (13) [AAP BF4]

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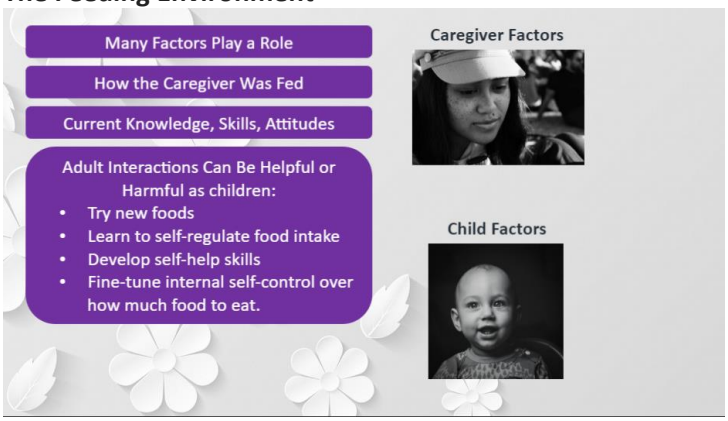
Respectfully discussing who shares responsibility for feeding and care of children is necessary to understand caregiver needs and concerns. Open-ended questions supporting an MI approach are especially useful for beginning conversations.

For example: "Is it okay if I ask a few questions to better understand your daily concerns about feeding and caring for [child's name]?"

Follow up questions:

- How does your family share responsibilities for child care?
- What support do you have in managing daily care for your baby?
- How do you communicate any changes or important concerns for your child in your family?
- Do you feel supported in the decisions you make about feeding and care for your baby?
- How do you feel about coordinating and planning care for your child? (13)

The Feeding Environment



Many factors play a role in the eating experiences of children and the feeding relationship. A mindful approach shows respect by asking permission to explore these factors in ways that give caregivers control and avoid judgement.

- Factors include how the caregiver was fed as a child and his or her current knowledge, skills, and attitudes.
- Caregivers have limited control over foods eaten away from home or prepared elsewhere to be consumed at home, among other things.
- Adult interactions can be helpful or harmful as children try new foods, learn to *self-regulate food intake, develop self-help skills, and fine-tune internal self-control* over how much food to eat. (13) [AAP BF4]

Pop-up text boxes:

How the Caregiver Was Fed:

- Parent-child interactions
- Role modeling
- Cultural influences
- Traditions involving foods

Caregiver Skills and Knowledge:

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- Knowledge about foods and nutrition
- Developmentally appropriate feeding
- Preparing meals

Caregiver attitudes:

- Toward foods and eating
- Attitudes about body weight
- Food insecurity and hunger

Caregiver Interactions:

- Recognizing hunger and satiety cues
- Responsive feeding
- Problem-solving and handling frustrating experiences

Trying new foods:

- Head and neck control
- Coordinated swallow
- Motor skills and self-feeding

Self-Help Skills:

- Able to reach, grasp, and manipulate foods
- Able to use verbal and non-verbal cues for assistance

Fine Tune Internal Self-Control:

- Practices associating verbal and nonverbal cues with internal feelings of hunger and satiety
- Can express to caregiver the desire for more food, or to stop feeding

Self-Regulate Intake of Foods:

- Hunger or interest shown by leaning forward or opening mouth
- Satiety or disinterest shown by leaning back or turning away
- Allowed to stop feeding

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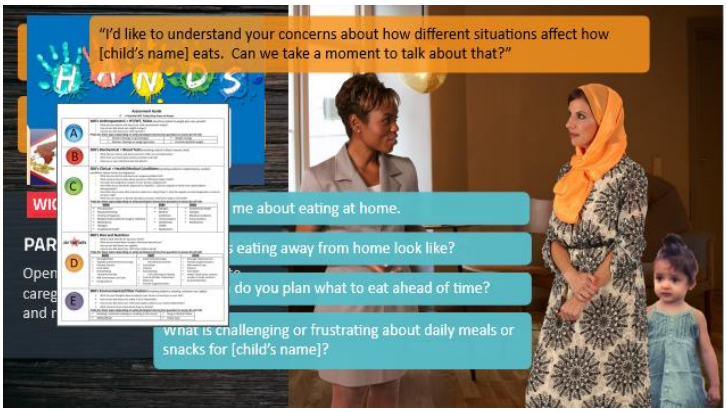
When children are young, parents and caregivers are highly motivated and have more control over what children eat. As children become older they have more control over their choices and are increasingly influenced by the outside food environment. (13) [AAP BF4]

Family perspectives are influenced by **cultural norms, attitudes about body weight, food insecurity and hunger.**

Partner with caregivers in promoting self-regulation of eating as children are exposed to new tastes, textures, and eating experiences appropriate for their developmental ability and nutrient needs.

Food jags and picky eating are normal behaviors in young children, and for most children these patterns disappear before school age if parents **continue to expose them to a variety of new and familiar foods**. Mealtime provides opportunities for wonderful parent-child interactions. (13) [AAP BF4]



Learning more about feeding behaviors and parent-child interactions in WIC nutrition assessment conversations can be challenging.

Using open-ended questions to explore when, where and how daily feeding occurs, and what parent-child interactions look like can offer valuable insight to caregiver concerns.

For example: "I'd like to understand your concerns about how different situations affect how [child's name] eats. Can we take a moment to talk about that?"

- Please tell me about eating at home.
- What does eating away from home look like?
- How often do you plan what to eat ahead of time?
- What is challenging or frustrating about daily meals or snacks for [child's name] (13)

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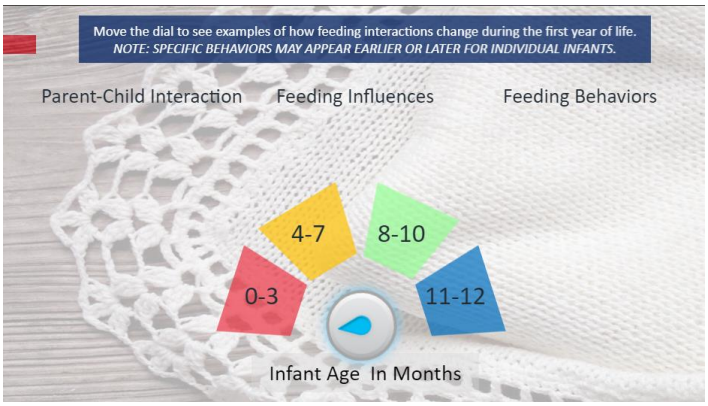

Move the dial to see examples of how feeding interactions change during the first year of life.

- Parent-Child Interaction (4 examples with increasing developmental ability)
- Feeding Influences (4 examples with increasing developmental ability)
- Feeding Behaviors (4 examples with increasing developmental ability)

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Overfeeding and rewarding with food (useful phrasing)

Parents and other family members continue to have the most influence on children's eating behaviors and attitudes toward foods. They can be positive role models by practicing healthy eating behaviors themselves. Families should eat together in a pleasant environment (without the television and other media distractions), allowing time for social interaction. Participation in regular family meals is positively associated with appropriate intakes of energy, protein, calcium, and many micronutrients and can reinforce the development of healthy eating patterns. (13) [AAP BF4]

Parents need to make sure that nutritious foods are available and decide when to serve them; however, children should decide how much of these foods to eat. Responsive feeding remains important during middle childhood as a means of reinforcing awareness of hunger and satiety cues.

At no point should caregivers be instructed to restrict their children's dietary intake. It's of vital importance that children learn to depend on their own hunger and fullness cues to determine how much they need to eat.

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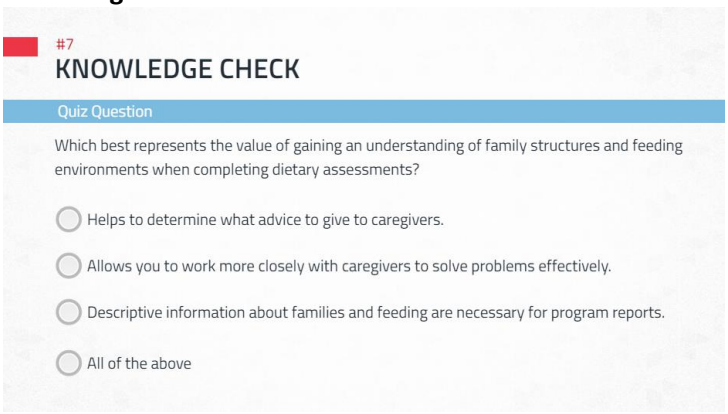
Health care professionals should also try to determine whether families have access to and can afford nutritious foods. They also should discuss families' perceptions of which foods are nutritious and their cultural beliefs about foods.

By using motivational interviewing skills, you can help families determine what (if any) choices they would like to make with regard to changes in diet or physical activity patterns, and how they would accomplish making their desired changes.

Knowledge Check 7



Choose the answer that best represents the value of gaining an understanding of family structures and feeding environments when completing dietary assessments?

- Helps to determine what advice to give to caregivers.
- Allows you to work more closely with caregivers to develop effective solutions to problems.
- Descriptive information about families and feeding are necessary for program reports.
- All of the above

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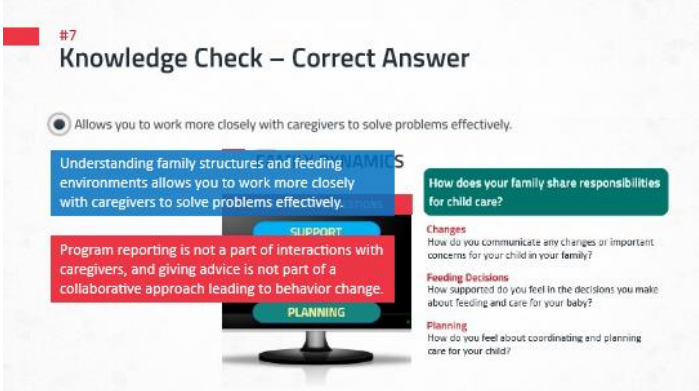
Feedback 7



The correct answer is “allows you to work more closely with caregivers to solve problems effectively.”

- Understanding family structures and feeding environments allows you to take a collaborative approach with caregivers.
- Program reporting is not a part of interactions with caregivers, and giving advice is not part of a collaborative approach leading to behavior change.

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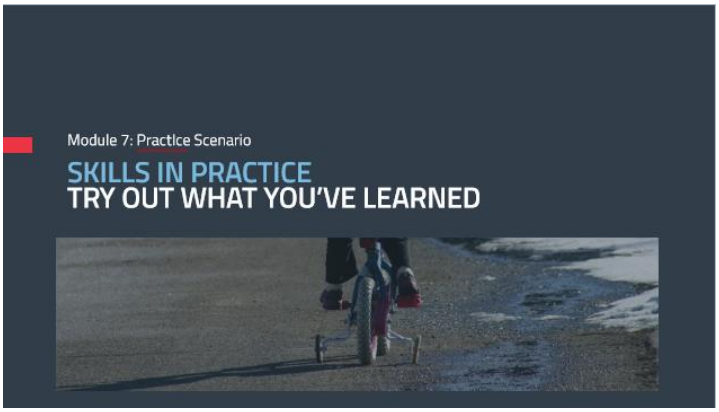
Module 7: Practice Scenario



Try Out What You've Learned

This module reviews a scenario to explore best practices for helping the caregiver of an obese child.

Scenario A

Today you see Becky and her son Carter, who is 2yrs, 6months old for a mid-certification appointment.

- Carter's BMI has increased from the 83rd percentile to the 96th percentile in the past 6 months.
- His last hemoglobin measurement taken during his last certification appointment was 13.0
- Carter's doctor recently recommended that Becky put Carter on a diet by eliminating all soda and processed foods from Carter's diet, but had no other clinical concerns.

[You see Carter hovering near his mom, holding a baggy of goldfish crackers and a large sippy cup of juice.]

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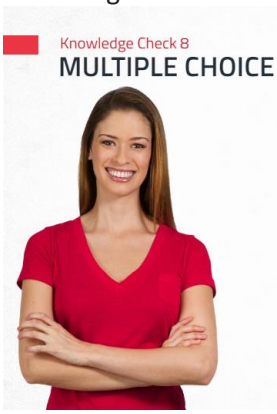
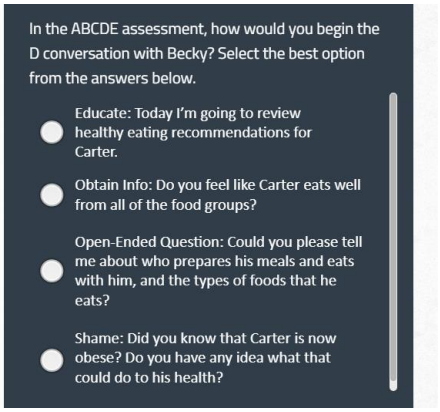
Knowledge Check 8

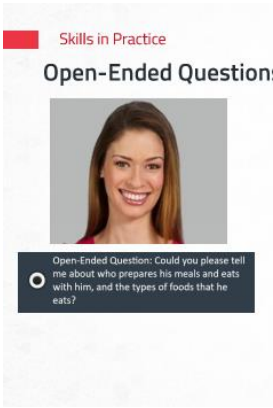


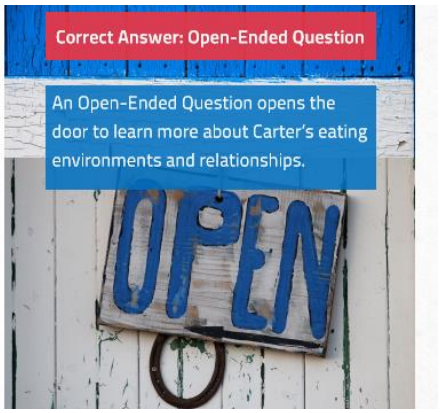


1. In the ABCDE assessment, how would you begin the D conversation with Becky? Select the best option from the answers below.

a) Educate: Today I'm going to review healthy eating recommendations for Carter.
b) Obtain Info: Do you feel like Carter eats well from all of the food groups?
c) Open-Ended Question: Could you please tell me about who prepares his meals and eats with him, and the types of foods that he eats?
d) Shame: Did you know that Carter is now obese? Do you have any idea what that could do to his health?

Feedback for Incorrect Answers





Correct Answer: An Open-Ended Question opens the door to learn more about Carter's eating environments and relationships.

Incorrect Answers:

- Jumping into nutrition education without understanding this family's needs will be very unlikely to result in behavior changes.
- Asking a closed-ended question like this will likely result in a short, superficial response.
- Scolding Becky, especially about a sensitive topic such as her child's weight, would likely backfire, causing her to become upset and defensive.

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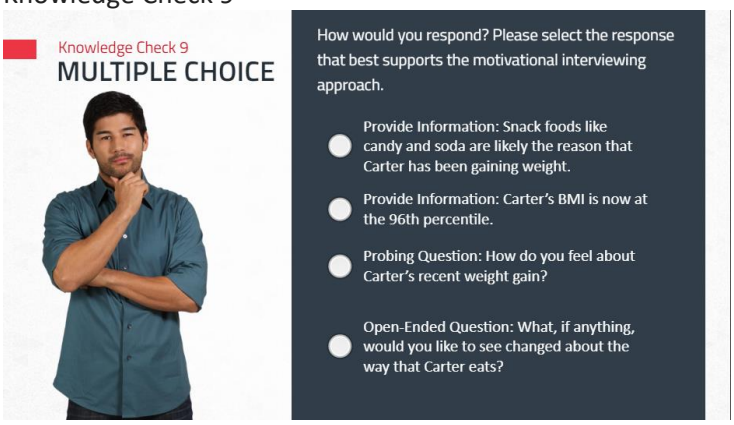
Counselor: Could you please tell me about who prepares his meals and eats with him, and the types of foods that he eats?

Becky: I feed Carter breakfast in the mornings, usually just cereal, and milk, and a banana or something.

- I take Carter to my mom's house three times a week and to child care facility twice a week. I think they feed him pretty normal stuff at preschool. Like peanut butter and jelly sandwiches, chicken nuggets, tacos, fruit, milk. Stuff like that.
- I pack his meals when he goes to my mom's house, but it seems like he rarely eats what I pack for him, and she tells me that he usually just ends up snacking on things around her house like chips, crackers, candy, soda.
- He usually comes home starving on days that he's gone to child care, and I'll give him a snack before I make dinner, but on days that he goes to my mom's, he will hardly eat anything in the evening.
- Oh, and then twice a month he spends weekends with his dad. And he'll take him to get ice cream or go out to eat more often than me, but it's not excessive. We can talk about it, and his dad wants to know what his doctor says.

Knowledge Check 9



How would you respond? Please select the response that best supports the motivational interviewing approach:

a) Provide Info: Snack foods like candy and soda are likely the reason that Carter has been gaining weight.
b) Provide Info: Carter's BMI is now at the 96th percentile.

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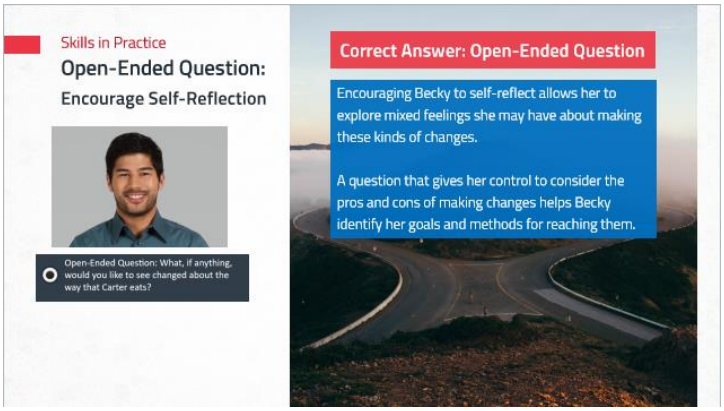
c) Probing Question: How do you feel about Carter's recent weight gain?
d) Open-Ended Question: What, if anything, would you like to see changed about the way that Carter eats?

Feedback for Incorrect Answers



Correct Answer: Encouraging Becky to self-reflect allows her to explore mixed feelings she may have about making these kinds of changes.

A question that gives her control to consider the pros and cons of making changes helps Becky identify her goals and methods for reaching them.

Incorrect Answers:

- Jumping into nutrition education without understanding this family's needs will be very unlikely to result in behavior changes.
- Focusing on Carters' weight is may cause Becky to feel defensive.
- Becky may feel pressured to discuss Carter's weight even if she prefers not to discuss it.

Counselor: What, if anything, would you like to see changed about the way that Carter eats?

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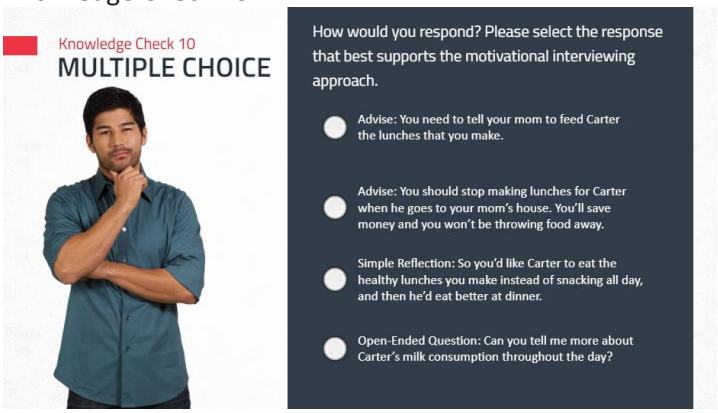
Becky: Well, I guess what I would like to see is him eat more of the lunches I pack for him when he goes to my mom's. I hate throwing food away. It would also be great if he were to eat dinner when he came home from there too instead of being allowed to snack all day.

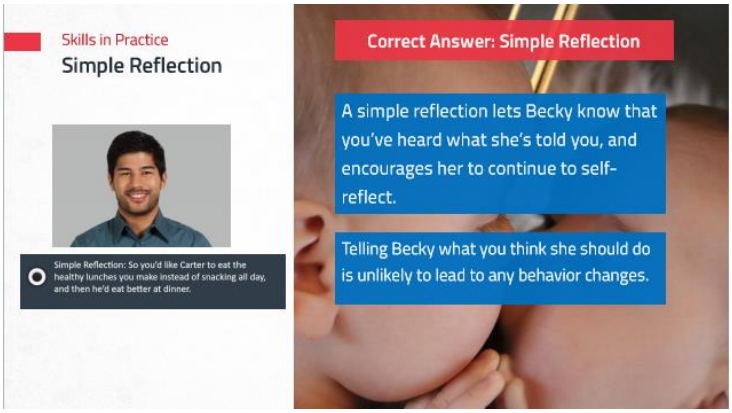
Knowledge Check 10



How would you respond:

a) Advise: You need to tell your mom to feed Carter the lunches that you make.
b) Advise: You should stop making lunches for Carter when he goes to your mom's house. You'll save money and you won't be throwing food away.
c) Simple Reflection: So you'd like Carter to eat the healthy lunches you make instead of snacking all day, and then he'd eat better at dinner.
d) Open-Ended Question: Can you tell me more about Carter's milk consumption throughout the day?

Feedback for Incorrect Answers



Correct Answer: A simple reflection lets Becky know that you've heard what she's told you, and encourages her to continue to self-reflect. Telling Becky what you think she should do is unlikely to lead to any behavior changes.

Incorrect Answers:

- Telling Becky what you think she should do is unlikely to lead to any behavior changes.
- Telling Becky what you think she should do is unlikely to lead to any behavior changes.

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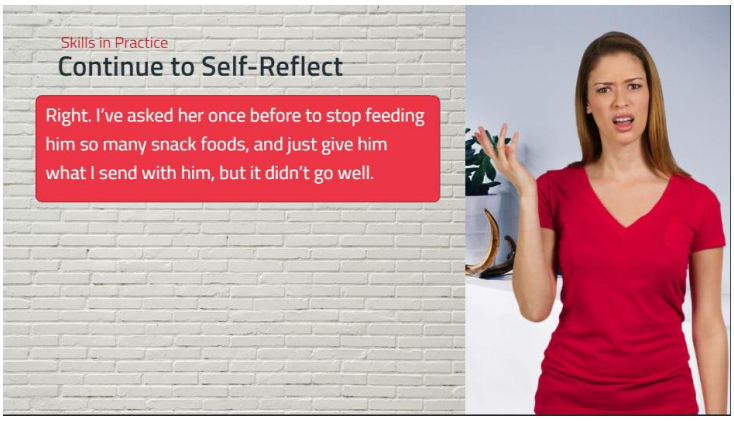
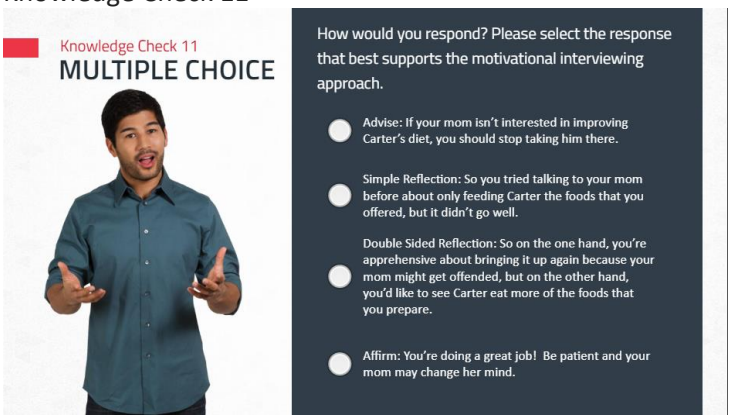
- Focusing on Carter's milk consumption ignores Becky's concern.



Counselor: So you'd like Carter to eat the healthy lunches you make instead of snacking all day, and then he'd eat better at dinner.

Becky: Right. I've asked her once before to stop feeding him so many snack foods, and just give him what I send with him, but it didn't go well. She got pretty defensive, and told me that I turned out fine with the way that she fed me.

Knowledge Check 11



How would you respond:

a) Advise: If your mom isn't interested in improving Carter's diet, you should stop taking him there.
b) Simple Reflection: So you tried talking to your mom before about only feeding Carter the foods that you offered, but it didn't go well.
c) Double Sided Reflection: So on the one hand, you're apprehensive about bringing it up again because your mom might get offended, but on the other hand, you'd like to see Carter eat more of the foods that you prepare.
d) Affirm: You're doing a great job. Be patient and your mom may change her mind.

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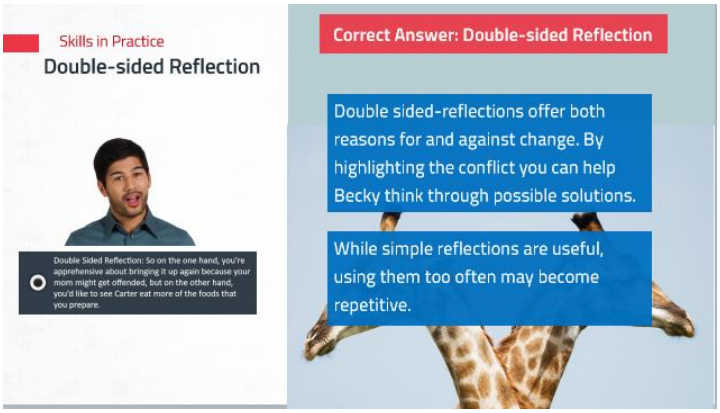
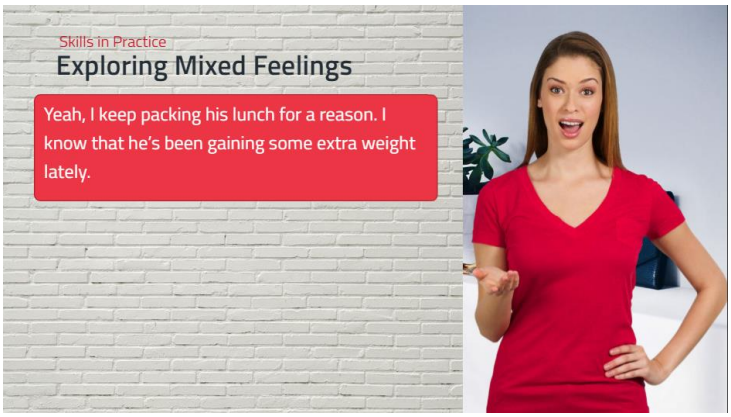
Feedback for Incorrect Answers



Correct Answer: Double sided-reflections offer both reasons for and against change. By highlighting the conflict, you can help Becky think through possible solutions. While simple reflections are useful, using them too often may become repetitive.

Incorrect Answers

- Telling Becky what you think she should do is unlikely to lead to any behavior changes.
- A simple reflection would be okay, but a double-sided reflection would probably be the better choice to help Becky resolve her ambivalence.
- Affirming Becky's patience does not help her decide what she can do about the problem she identified. (However, an affirmation *in addition to* encouraging self-reflection would be a good response.)



Counselor: So, on the one hand, you're apprehensive about bringing it up again because your mom might get offended, but on the other hand, you'd like to see Carter eat more of the foods that you prepare.

Becky: Yeah, I keep packing his lunch for a reason. I know that he's been gaining some extra weight lately. I got picked on for my weight when I was little, and it was no fun.

Knowledge Check 12

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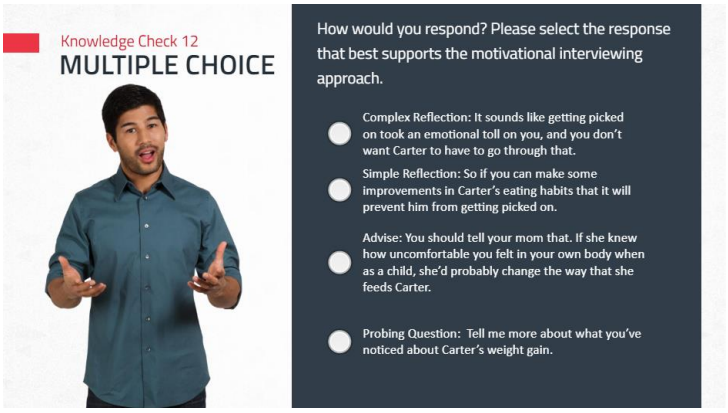

How would you respond:

a) Complex Reflection: It sounds like getting picked on took an emotional toll on you, and you don't want Carter to have to go through that.
b) Simple Reflection: So if you can make some improvements in Carter's eating habits that it will prevent him from getting picked on.
c) Advise: You should tell your mom that. If she knew how difficult it was to feel uncomfortable in your own body when you were younger, she'd probably change the way that she feeds Carter.
d) Probing Question: Tell me more about what you've noticed about Carter's weight gain.

Feedback for Incorrect Answers

Correct Answer: A complex reflection emphasizes your best guess about Becky's strongest motivation for change. By connecting her desire to protect Carter with a change she is already considering, you may help Becky commit to action.

- A simple reflection would be okay, but a complex reflection would probably be the better choice to help Becky explore her emotions and reasons for making a change.
- Telling Becky what you think she should do is unlikely to lead to any behavior changes.
- Focusing on Carter's weight ignores Becky's motivations and responses.

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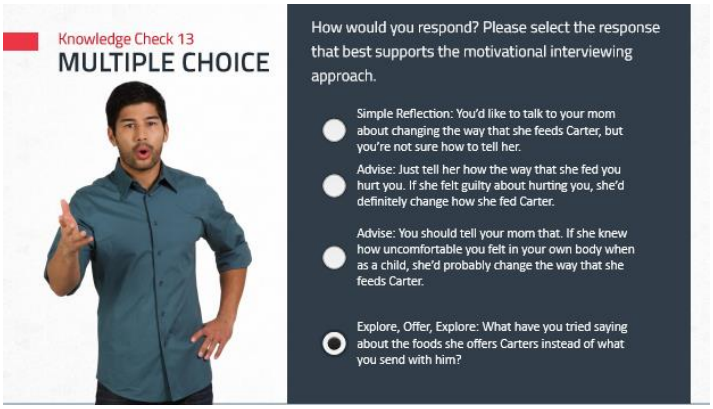
Counselor: It sounds like getting picked on took an emotional toll on you, and you don't want Carter to have to go through that.

Becky: The crazy part is that I don't think I ever even told her that before. Maybe I was just too embarrassed.

- Don't get me wrong, my mom is awesome, and she sacrificed so much for me, but I just feel like if she keeps feeding Carter the same way that she fed me, that he's going to have the same problems that I did.
- I just don't know how to tell her.

Knowledge Check 13



How would you respond? Please select the response that best supports the motivational interviewing approach.

a) Simple Reflection: You'd like to talk to your mom about changing the way that she feeds Carter, but you're not sure how to tell her.
b) Advise: Just tell her how the way that she fed you hurt you. If she felt guilty about hurting you, she'd definitely change how she fed Carter.
c) Advise: You should tell your mom that. If she knew how uncomfortable you felt in your own body when as a child, she'd probably change the way that she feeds Carter.
d) Explore, Offer, Explore: What have you tried saying about the foods she offers Carter?

Feedback for Incorrect Answers

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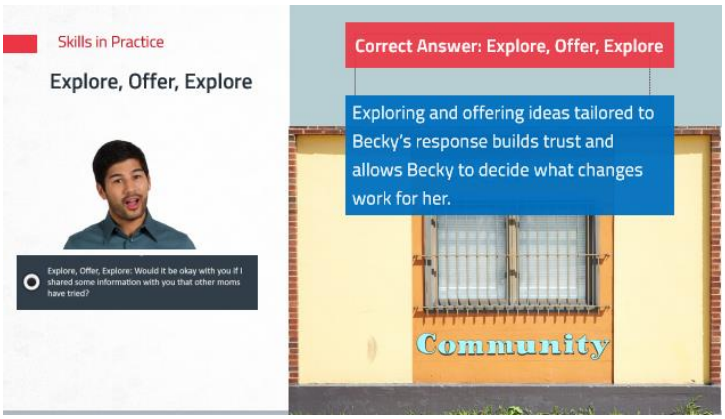
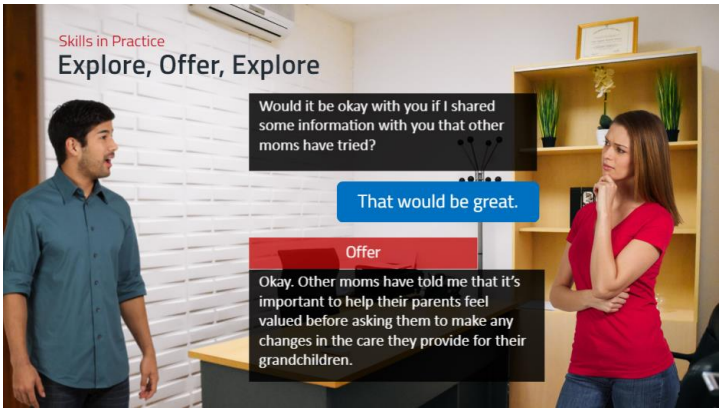


Correct Answer: Exploring and offering ideas tailored to Becky's response builds trust and allows Becky to decide what changes work for her.

- A simple reflection would be okay, but this might be a better time to help her resolve her problem.
- Telling Becky what you think she should do is unlikely to lead to any behavior changes.
- Telling Becky what you think she should do is unlikely to lead to any behavior changes.



Counselor: It sounds like you're grateful for your mom but you're also having concerns about Carter's health. If you want, we could talk more about how to start difficult conversations with family members?

Becky: That would be great.

Counselor: What have you tried saying about the foods she offers Carter?

Becky: I tried telling her he started refusing to eat things at home he used to like. When she started letting him have pizza instead of his sandwich, or chips instead of his apple slices he started wanting the same things at home. And the times I tried to explain the doctor's concerns about his weight, she kept saying Carter looked fine to her. She acts like I'm just complaining because she didn't do everything my way.

Counselor: It sounds like you have already tried a couple methods but they were not as successful as you

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would have liked. Would it be okay if I shared some tips that have helped other families with tough conversations?

Becky: Yes, please!

Counselor: Other moms have told me it really helped to tell their parents how much they value and recognize their dedication as a grandparent before asking them to make any changes.

- Maybe if your mom hears how much you appreciate her efforts and the time she spends with Carter, she'll be more open to discussing what she's giving him to eat.
- How do you feel about that approach?

Becky: Yeah. I think I'm gonna try that.

- I know that she's just feeding him junk foods because she loves him.
- I'll tell her how much I appreciate what she does for me and Carter, before I start talking to her about maybe some different ways to show him her love.
- I'll let you know how it goes! Wish me luck!

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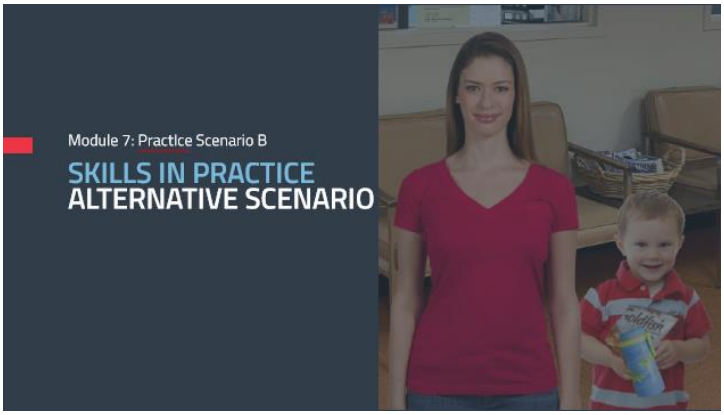
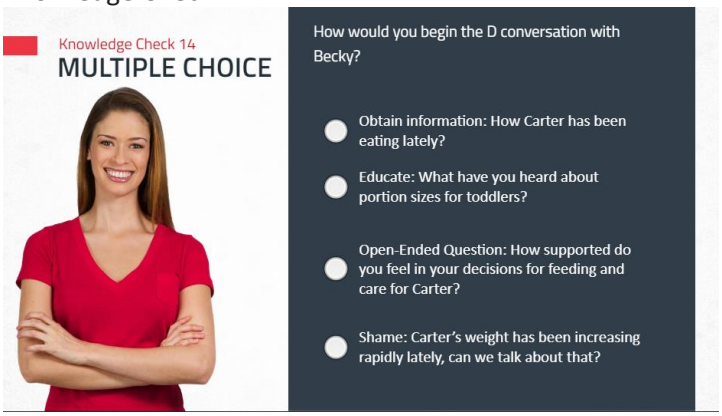
Scenario B



Next we'll look at the same conversation again, but this time Becky is not ready to talk with Carter's grandmother about making changes.

Knowledge Check 14



How would you begin the D conversation with Becky?

a. Open-Ended Question: How Carter has been eating lately?
b. Educate: What have you heard about portion sizes for toddlers?
c. Open-Ended Question: How supported do you feel in your decisions for feeding and care for Carter?
d. Shame: Carter's weight has been increasing rapidly lately, can we talk about that?

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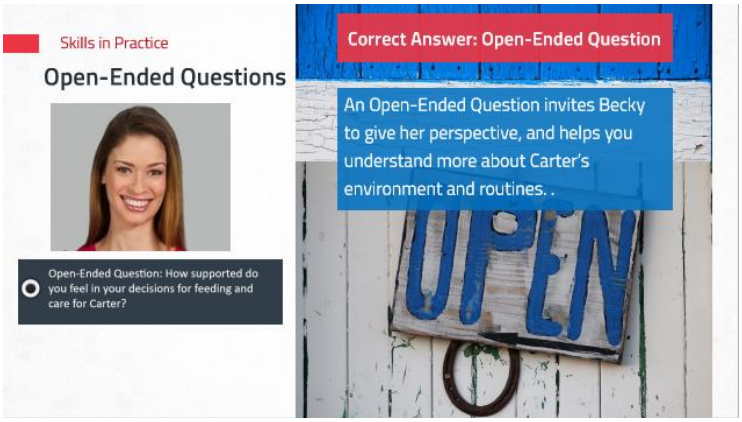
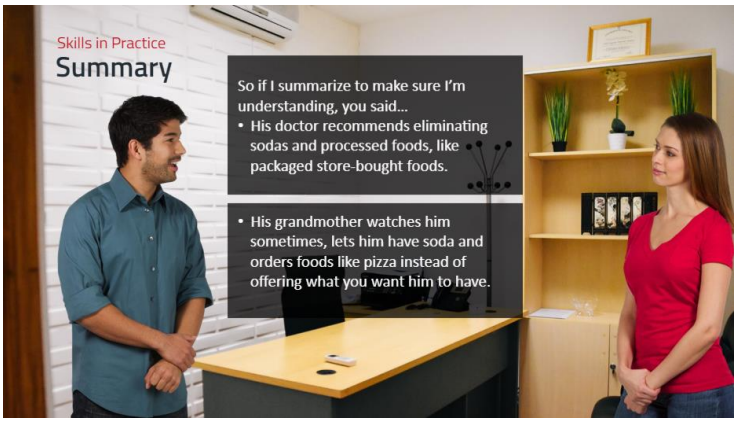
Feedback for Incorrect Answers



Correct answer: An Open-Ended Question invites Becky to give her perspective, and helps you understand more about Carter's environment and routines.

- Beginning to probe without understanding this family's needs will be very unlikely to result in behavior changes.
- Discussing nutrition education without understanding the situation may not be helpful.
- Focusing on a sensitive topic such as weight is likely to trigger feelings of judgement and prevent positive rapport.



Counselor: I'd like have a better idea what you manage with planning Carter's routine. How supported do you feel in your decisions about feeding and care for Carter?

Becky: It's a little frustrating when Carter comes back from his dad's twice a month. His routine is different, although we communicate about it fairly well. I don't mind his dad giving him treats more often and taking him since they're not together as much.

- I'm more concerned with how often Carter's grandmother tends to skip planned meals to get something Carter wants, like chicken nuggets or pizza. She gives in let's Carter have sodas if he refuses water.
- I'm not worried about what Carter eats at child care, they offer healthy foods and record what he eats.

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- Between visits with dad and staying with grandmother it's hard to keep a good routine, especially on errands and appointments. A lot of times I let him have what he wants just to avoid tantrums and delays.

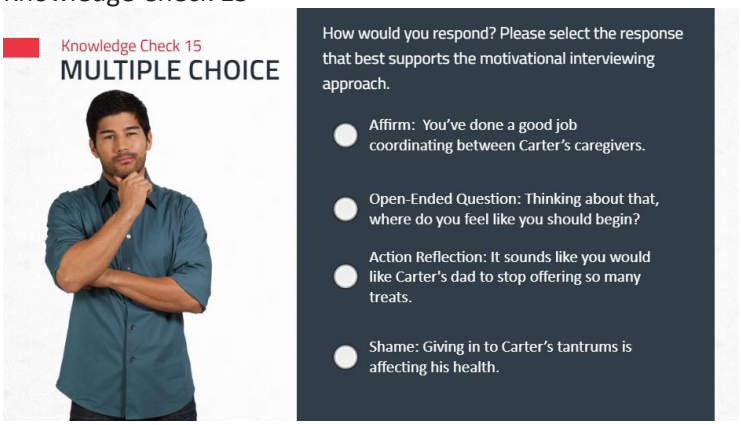
You: Thanks for sharing about what you're doing to arrange care with his grandmother, his dad and child care. It sounds like Carter's schedule keep you really busy.

So if I summarize to make sure I'm understanding, you said…

- His doctor recommends eliminating sodas and processed foods, like packaged store-bought foods.
- Carter's grandmother watches him sometimes, lets him have soda and orders foods like pizza instead of offering what you want him to have.
- At daycare he eats better. But he has more treats when he sees his dad twice a month.
- Does that sound about right?

Becky: Mmhm. (Nodding agreement)

Knowledge Check 15



How would you respond?

a) Affirm: You've done a good job coordinating between Carter's caregivers.
b) Open-Ended Question: Thinking about that, where do you feel like you should begin?
c) Action Reflection: It sounds like you would like Carter's dad to stop offering so many treats.
d) Shame: Giving in to Carter's tantrums is affecting his health.

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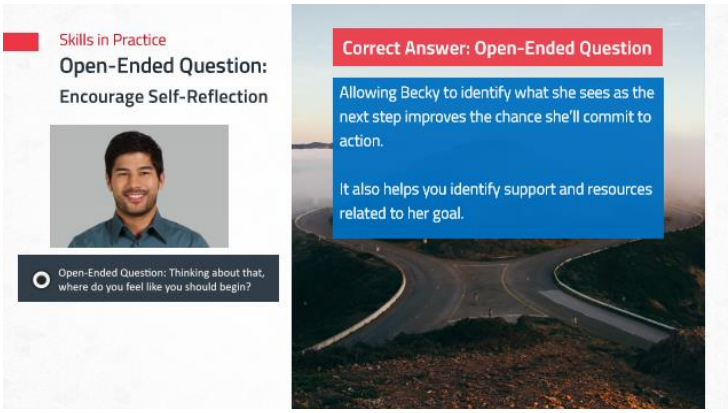
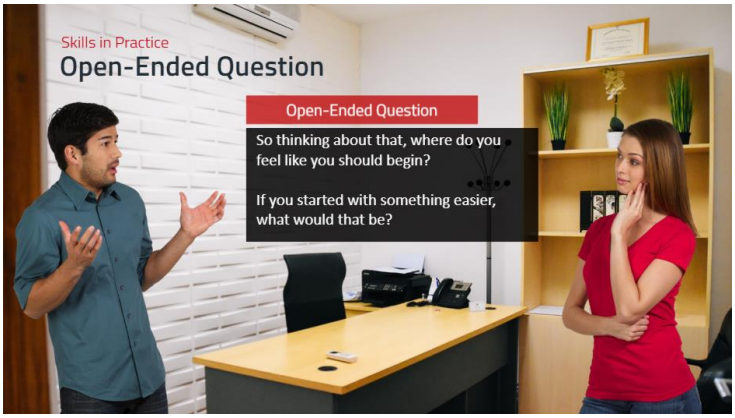
Feedback for Incorrect Answers



Correct answer: Allowing Becky to identify what she sees as the next step improves the chance she'll commit to action. It also helps you identify support and resources related to her goal.

Incorrect Answers

- Affirming is a positive response, but does not help Becky self-reflect to make a decision that supports her own goals.
- An action reflection focusing on the behavior of Carter's dad is not consistent with the concerns Becky identified earlier.
- Shaming Becky about her response to Carter's tantrums may cause her to feel defensive, and less willing to continue the discussion.



Counselor: So thinking about that, where do you feel like you should begin? If you started with something easier, what would that be?

Becky: Since his doctor pointed out how often he has soda or processed snacks I can at least work on that when I'm home.

- It will be hard to change his grandmother and I don't feel like discussing it with her right now.
- He drinks a lot of milk or juice when I don't let him have soda, but I could use a smaller cup for juice or milk.
- Like today I filled his big cup of juice instead of bringing a smaller one, which I could change for a smaller cup.

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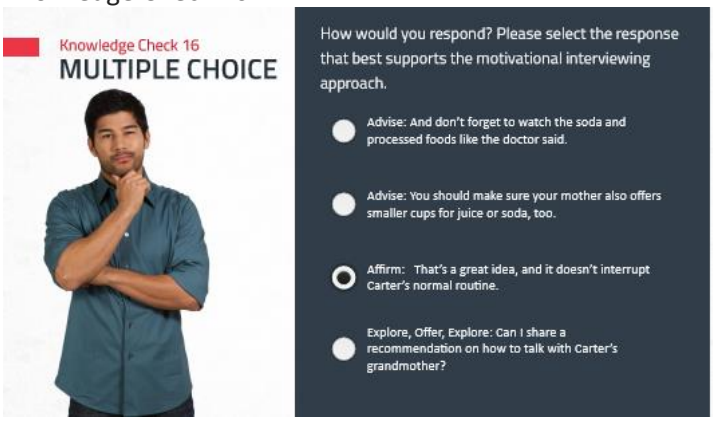
Counselor: That sounds like a great plan. Please correct me if I'm misunderstanding, but for now you feel like a good place to start is limiting how much juice you offer at a time for Carter?

Becky: Yes.

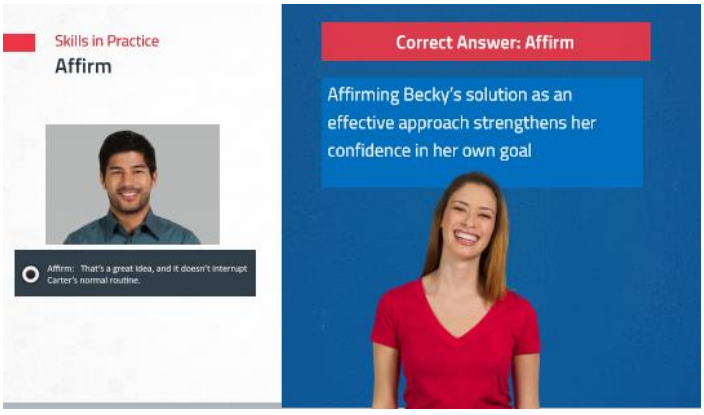
Knowledge Check 16



How would you respond? Please select the response that best supports the motivational interviewing approach.

a) Advise: And don't forget to watch the soda and processed foods like the doctor said.
b) Advise: You should make sure your mother also offers smaller cups for juice or soda, too.
c) Affirm: That's a great idea, and it doesn't interrupt Carter's normal routine.
d) Explore, Offer, Explore: Can I share a recommendation on how to talk with Carter's grandmother?

Feedback for Incorrect Answers



Correct Answer: Affirming Becky's solution as an effective approach strengthens her confidence in her own goal.

Incorrect Answers

- Advising Becky is more controlling and doesn't show respect for Becky's ability to find solutions to her own problems

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- Exploring and offering suggestions about how to talk with Carter's grandmother ignores Becky's previous statement that she's not ready to have a discussion with her.

Counselor: That's a great idea, and it doesn't interrupt Carter's normal routine. You were also telling me about the recommendations from Carter's doctor. On a scale of 1 to 10, how important do you feel like eliminating processed snacks and soda are for you?

Becky: Probably an 8 for soda, I don't think it's a big deal once in a while, but his grandmother is buying them a lot so it's a bigger issue.

- I might convince her to limit those a lot more, if not completely. At least I can avoid giving it to him when I'm home.
- On snacks and other processed foods I'd say like a 6, if he's eating healthier meals instead of pizza or things his grandmother likes to get for him.
- And least I can give him more fruit or healthier snacks when we're home together.

Counselor: So reducing soda is a priority and you feel like that's possible. And you can work on reducing processed snacks by giving him fruit or healthier options. How do you feel about starting with that?

Becky: Yeah, I'll add more fruit on my grocery list and make sure that replaces other snacks when I'm with him. And request his grandmother's help to keep those out for him. And I won't keep restocking chips or cookies since he'll keep asking for them.

Counselor: I think that's a great idea. I'm looking forward to hearing about how it goes when you come back again. And any progress is good, even if it takes a little while. Do you have any questions or other concerns today?

Becky: No, that's good.

Counselor: Thanks Becky for taking time to talk with me today. Next we'll review his WIC foods to issue benefits for Carter.

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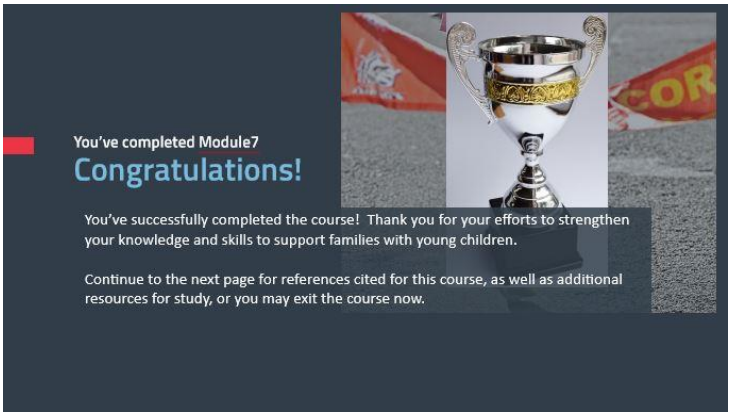

Congratulations, you've successfully completed the course! Thank you for your efforts to strengthen your knowledge and skills to support families with young children.

Continue to the next page for references cited for this course, as well as additional resources for study, or you may exit the course now.

Module 8

8.1 Resources

- You may click on any of the modules below for references cited within a specific module.
- The additional resources button shows related resources not cited within the course itself.
- You may also navigate back to the beginning of the course using the menu sidebar or the Back to Menu button on this page.

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Appendix - Notes and Supplemental Information

Slowing and Plateau of Rates

Examples of community efforts to promote public health and awareness:

1. SNAP and WIC increased the focus on nutrition education, farm fresh produce, breastfeeding, and physical activity
2. Healthy, Hunger-Free Kids Act of 2010 in schools and child care settings strengthened school wellness policies.
3. Affordable Care Act of 2010 included obesity-related healthcare services and required new restaurant menu-labeling
4. Child Care Development Block Grant increased requirements for promoting nutrition, physical activity and health in child care programs
5. Partnership for a Healthier America and Let's Move! Campaigns, in addition to others strengthened the public-private collaborations to improve nutrition and physical activity in child care settings, workplaces, grocery stores, and other community settings. [Grocery stores and workplace wellness related images]

Defining Underweight and Obesity[1]

Definition of Underweight, Overweight, and Obesity in Children

- A World Health Organization (WHO) Expert Committee report in 1995 recommended Body Mass Index (BMI) to track growth parameters for children. CDC adopted WHO guidance for using BMI to assess growth in children. (7)

BMI is Practical for Everyday Assessment

- WHO, CDC, AAP and other professional organizations continue to use BMI as a cutoff to define overweight and obesity for adults and children. The association between body mass index and health outcomes is very strong, easily measured, and practical for everyday assessment.

Citation: WHO Technical Report Series 854: Who Expert Committee on Physical Status: the Use and Interpretation of anthropometry.

Improved Understanding of Weight

- In recent decades understanding of the relationship of bodyweight, overall health, and specific health risks has improved. The American Association of Clinical Endocrinologists (AACE) and American College of Endocrinology (ACE) no longer use the term obesity or consider BMI as a sole factor for recommending care. In 2016 AACE and ACE[1] published a position statement explaining the function of adipose tissue and the functions of adipocytes related to insulin resistance, type-2 diabetes, and cardiovascular disease. They state, "What has been generally termed obesity can now be reconsidered as an Adiposity-Based Chronic Disease (ABCD)." (8)
- In recognizing the causative role of adiposity in disease outcomes, AACE/ACE has revised their clinical practice guidelines and care models to reduce emphasis on weight. They instead focus on lifestyle medicine for prevention at both the population and patient level. Care models address the home and clinic environments, patient motivation, and assess outcomes.

Citation: Endocrine Practice: March 2017, Vol. 23, No. 3, pp. 372-378. ADIPOSITY-BASED CHRONIC DISEASE AS A NEW DIAGNOSTIC TERM: THE AMERICAN ASSOCIATION OF CLINICAL ENDOCRINOLOGISTS

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Metabolic Syndrome in the Pediatric Setting

- For adults, the presence of at least three of five risks (central obesity, hyperglycemia, hypertriglyceridemia, elevated blood pressure, and low HDL cholesterol) is associated with diabetes and cardiovascular disease. In a 2017 report, AAP examined evidence for the specific clustering of cardiometabolic risks in the pediatric population, referred to as metabolic syndrome (MetS). Challenges to define and recommend treatment for MetS in children led authors to state "there is no uniform way to treat MetS when it is diagnosed other than weight management." (9)
- In summary, evidence supports BMI to assess risks and provide treatment for metabolic syndrome in the pediatric setting.

The First 1000 Days

- The first 1,000 days of life—conception through age 24 months—represent an important period for the development and thus prevention of childhood obesity. Evidence indicates that influences during pregnancy and infancy may alter lifetime risk of obesity. A total of 34 published articles representing 26 unique interventions met criteria for inclusion and form the basis of the results.
- The summary conclusion offered by the authors of this review states, "The finding of only a small number of effective early-life interventions for childhood obesity prevention is not uncommon."
- Narration: Initiation and duration of interventions varied, beginning as early as pregnancy and lasting weeks or months, and in some cases tracking post-intervention outcomes up to 10 years.
- [3] Among interventions beginning in pregnancy through early infancy, no interventions were found to improve BMI outcomes at later ages. However, some improvement in breastfeeding initiation and duration were observed in some trials.
- Two interventions that utilized home visiting were found to be effective in improving child BMI. First, the Healthy Beginnings trial included eight home visits focusing on infant diet and feeding, and activity through age 24 months. Intervention children had a lower BMI than the control group.
- The second effective intervention provided community health workers with education about maternal diet and infant feeding practices during both home and group visits. At 13-24 months child BMI was reduced.
- Only one clinic-based intervention showed improved BMI outcomes. An intervention used behavioral counseling on diet and physical activity for the entire family intermittently from age 7 months to 10 years, with lower prevalence of overweight among daughters at 10 years, but not sons.
- A home-based program teaching curriculum taught soothe and sleep behaviors and introduction of solids for infants during two home visits. At 12 months of age infants had a lower weight-for-length.

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- A year-long intervention targeting child daycare centers promoted healthy foods and physical activity among families with children 9-24 months. Greater reductions in BMI were seen compared with control group. (
- To date there is very limited evidence of interventions with positive results among children from birth to 2 years of age.

Interventions for 2-5 year olds

High Five for Kids Study

- In the High Five for Kids Study ten pediatric practices recruited eligible children 2-6 years old with BMI > 85%ile. Five pediatric practices offered the intervention, and the other five practices provided usual care. According to the authors this year-long intervention was the first randomized controlled trial in a primary care setting aimed at reducing obesity among preschool-aged children.
- Intervention families received motivational interviewing in addition to educational modules targeting television viewing, fast food and intake of sugar-sweetened beverages.
- Non-intervention families received usual care visits at baseline followed by annual well-child care visits.
- The additional motivational interviewing sessions did not impact BMI among the intervention group compared to the usual care group after one year. The intervention group did reduce intake of fast food and sugar-sweetened beverages, and reduced television viewing time.

Overweight parent-child pairs

- A trial published in 2012 describes an intervention involving child-parent pairs. In this study pediatricians and nurse practitioners in four large urban/suburban practices recruited children age 2-5 years having a BMI > 85%ile, and who also had an overweight parent.
- The intervention group included 46 child-parent pairs, and the control group included 50 child-parent pairs.
- For six months trained staff held 10 group meetings and 8 calls focused on education about diet, physical activity, and sedentary behaviors with both groups. Diet education included appropriate serving sizes and number of daily servings, with recommended daily energy intakes by age. Both groups were given child weight loss goals and physical activity goals. Parents in the intervention group received education about parenting-related techniques and strategies for facilitating lifestyle changes. Parents engaged in active play with their child at least 10 minutes per day.
- Pediatricians checked in with patients at 3-month and 6-month wellness visits. Children in the intervention group had greater reduction in BMI and z-BMI decreases at 3 and 6 months compared with the control group, and children with higher baseline BMIs showed greater decreases in BMI over time. Parents in the intervention group also had a greater BMI reduction compared with parents assigned to the control group. BMI changes in child-parent pairs were positively correlated.
- In this study, offering behavior modification strategies in addition to education about diet and physical activity resulted in better outcomes for both children and parents.

LAUNCH Study (2018)

- The LAUNCH study (Learning about Activity and Understanding Nutrition for better Child Health) recruited families of children age 2-5 years with BMI at or above 95%ile from 27 pediatrician offices in the greater Cincinnati/Northern Kentucky area. The LAUNCH program emphasized eating more fruits and vegetables, decreasing high fat foods and eating out,

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eliminating or limiting sweet beverages, teaching portion sizes for preschoolers, and increasing physical activity by training parents to use child behavior techniques and environment stimulus control.

- The LAUNCH intervention began with a 3-month intensive treatment phase consisted of weekly sessions with three treatment groups (LAUNCH, Motivational Interviewing only, or standard care). After the 3-month intensive phase, a 3-month maintenance phase consisted of biweekly sessions (LAUNCH, MI, or standard care). The intervention sessions alternated between clinic (10 sessions) and home (8 sessions) visits.
- For the LAUNCH group parenting skills and education about changing the home environment (addressing diet, physical activity, and stimulus control techniques) were applied in the home environment.
- The motivational interviewing group was separate from the LAUNCH group. This was a parent-only intervention lasting 6 months, delivered weekly during the initial 3 months and every other week for the next 3 months.
- During the six month intervention children across all groups had similar gains in height. The LAUNCH group participants gained an average of 0.67 kg in six months, while the MI and control groups gained over 2kg in six months.
- The LAUNCH participants' BMI decreased by 2.0 percentile points, the Motivational Interviewing participants BMI decreased by 0.21 percentile points, and the control group participants BMI decreased by 0.77 points.
- Differences were also seen in the parents of the different groups. LAUNCH parents had a BMI decrease of 0.98 %ile, while MI and standard care groups had increases of 0.43 and 0.21 %ile respectively.
- For the six month trial the children in the LAUNCH group had a greater reduction in BMI than the other two groups, and LAUNCH parents also had a greater reduction in BMI compared to the other two groups.

Summary of Intervention Examples

- From the limited examples of interventions with young children within the age range of WIC participants, we can see that positive changes in BMI were seen only when home-based behavior change strategies were used.
- Motivational interviewing resulted in positive changes in behavior but didn't change BMI compared to usual care. Without home-based behavior strategies or motivational interviewing there were no observed differences in BMI or behavior changes.
- When overweight parents participated with their child in the intervention they also experienced positive changes in BMI.

Current Efforts to Engage Families (AAP)

- Several notable efforts have been made to improve healthcare provider practices and develop family-friendly resources for parents and caregivers of young children. These efforts also bring new opportunities for collaboration among community providers.
- AAP has reached out to parents through with the Healthy Active Living for Families (HALF) Program. HALF interviewed over 200 parents of children up to 5 years old across the nation to explore parents' attitudes, needs and experiences related to messaging for healthy nutrition and active living.
- Experts in primary care, obesity, early childhood, strength-based approaches and psychology explored the evidence to address these parent perspectives. HALF experts then condensed their

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findings into practical lifestyle behaviors that promote healthy active living and reduce obesity in early childhood.

- AAP has developed innovative resources to help physicians improve their conversations with families about behaviors related to weight. The Change Talk app offers interactive role play situations about typical challenges related to nutrition behaviors. One scenario involves a breastfeeding mother thinking about using formula, a second scenario focuses on sweetened-beverage consumption by an overweight adolescent, and a third scenario features a parent feeling ambivalent about making changes in a four-year-old's feeding behaviors. (The app is free to download and use from the AAP website.)
- AAP promotes collaboration with community providers through the AAP Institute for Healthy Childhood Weight (IHCW). For example,the Institute for Healthy Childhood Weight and the Head Start National Center on Health have partnered to develop resources for training, technical assistance, and hands-on tools for Head Start staff and families.

AAP Supports WIC

- Besides the extensive evidence supporting WIC's positive impact, AAP actively advocates for WIC's role in promoting positive change. In May 2015, AAP President Sandra G. Hassink, MD, FAAP, testified before the Senate Agriculture Committee. Dr. Hassink explained how child nutrition programs such as WIC "play an important role in mitigating the double burden of obesity and food insecurity among children and families".
- Dr. Hassink also urged the committee to increase funding for the WIC breastfeeding peer counseling program: "One of the most effective investments congress can make during the prenatal to school-aged period is to support the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). I thank the committee for its strong, bipartisan support for WIC over the past 4 decades."
- A year later (2016) Dr. Hassink's testimony was supported by evidence from the AAP journal Pediatrics, showing WIC participants consumed more green vegetables and whole grains resulting from changes in the WIC food package.
- And in 2017 Pediatrics published evidence that weight-for-length among WIC infants decreased from 2010-2014 following program changes to delay the introduction of cereal and juice to infants and better support of breastfeeding options.

Motivational Interviewing
The Beginning

- Motivational interviewing (MI) is widely-recognized for its unique value as a client-centered approach to promote behavior change. Clinical psychologist William R. Miller pioneered the concept, later collaborating with Stephen Rollnick, a professor of clinical psychology.
- Miller describes his moment of realization during a sabbatical to Bergen, Norway where he lectured and met other psychologists. Younger colleagues asked him to role play how he might respond to clients they were seeing. They frequently stopped him to ask his reasoning for the way he responded, and what was guiding his thinking. Miller found himself verbalizing ideas he had not examined consciously before. In particular, he noted the confrontation style of addiction counseling seemed counterproductive. Pushing against resistance only strengthened client efforts to defend the status quo. He began writing a conceptual approach with an empathetic person-centered style, giving special attention to the client's own verbalized

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motivations for change. [Am Psychol. 2009 September ; 64(6): 527–537. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2759607/pdf/nihms146933.pdf]

- Miller envisioned the counselor's role as evoking, or bringing forth, the client's perspective, exploring conflicting or mixed feelings (ambivalence) about behavior change. This differed from common behavioral theories of the time, including the therapies Miller lectured about during his visit.
- A key difference of the MI approach is the relationship between counselor and client, which is collaborative instead of authoritative.

The Spirit of MI

- MI emphasizes the importance of genuine respect and partnering with participants. It invites people to examine their own values and behaviors. Instead of trying to convince or argue, MI seeks to draw out people's own hopes, experience and wisdom about themselves. As William R. Miller says, "You already have what you need, and together let's find it."
- MI demonstrates acceptance by meeting people "where they're at", without judging. Counselors take an MI approach by believing in a person's ability and trying to understand where they're coming from. They help people recognize their strengths and empower them to solve problems their way. [Ken Kraybill. From Building Skills in Motivational Interviewing. Washington Association of Community and Migrant Centers. April 3, 2018]

Evidence Across Disciplines

- In the first study of the MI approach clients were interviewed in separate sessions. Counselors used an MI approach in one session, and in a different session they attempted to persuade clients. Clients voiced twice as much change talk and half as much resistance when counselors used reflection and evoked client concerns using the MI approach.
- The benefits of MI have been demonstrated in a variety of settings where behavior is associated with disease prevention, management, and wellness. MI has demonstrated benefits for non-psychologists acting as counselors, such as medical doctors, dietitians, nurses, and midwives. Besides promoting willingness to change, studies show MI improves health outcomes when incorporated in programs for weight loss, treatment of diabetes, lowering lipid levels, and physical activity. [Am Psychol. 2009 September ; 64(6): 527–537. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2759607/pdf/nihms146933.pdf]

MI and WIC

- In the WIC setting, using OARS skills has become a familiar approach to assessment by encouraging participants to share their perspectives, affirming their skills and experience, and framing their responses in terms of their own values and goals. While also addressed, comparatively less attention and fewer resources support practice and role playing skills for eliciting and evoking change talk. Admittedly, simulating the context, details and variety of real conversations presents a greater challenge than understanding OARS.

An Existing Approach for Self-Paced Education using Motivational Interviewing and Behavior Change Strategies

- Excerpts from Nutrients 2015, 7, 6628-6669. Development of the Intervention Materials for the HomeStyles Obesity Prevention Program for Parents of Preschoolers

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Table 1. HomeStyles guide content: Description and main concepts.

Healthy HomeStylesThis

- This Guide sets the stage for participating in HomeStyles. All families complete this Guide first.
- Eating, playing, and sleeping choices affect the health of the whole family and can lead to lifelong habits.
- HomeStyles helps families make simple changes to stay healthy that can lead to big improvements. Kids copy their parents—so it is important to be a good role model and take responsibility for family decisions.
- HomeStyles helps parents set and reach small, easy goals that help make changes towards a healthier future.

Family Mealtimes

This Guide gives parents the secrets to successful family meals. Families do better when they eat together.

- Kids are happier and feel good about themselves.
- Kids feel more secure and closer to their families.
- Kids do better in school.
- Mealtime chats help kids learn how to say new words, make sentences, and listen.
- Older kids are less likely to drink alcohol, smoke, or use drugs.
- Families who share meals get health benefits, too.
- Their meals are healthier. Healthy meals mean a healthier family!
- Kids are less likely to be overweight.

Enjoyable Mealtimes

- This Guide helps parents have calmer, more relaxed family meals. Sharing time together at meals
- strengthens families.
- Mealtime chats promote kids' brain development.
- Meals are a great time to catch up and keep in touch with kids' activities.
- Calm, relaxing mealtimes help prevent unhealthy eating behaviors.
- A cheerful mood at meals is linked to eating healthier foods.
- Calm family meals make it easier for kids to try new foods and learn to enjoy them.
- Right Sizing Portions
- This Guide helps parents serve food portions that are "just right"—and keep body weights healthy.
- Many people do not know that they are eating portions that are too big, which can lead to overeating and weight gain.
- Healthy portion sizes help kids grow normally.
- Healthy portions give kids and parents the nutrients they need.
- Kids and parents get the right amount of calories to keep weights healthy.

Fuss Free Feeding

This Guide helps parents teach kids to enjoy new, healthy foods without fussing. The whole family wins when parents use positive feeding practices.

- Kids have fewer mealtime tantrums.
- Kids learn to enjoy eating healthy foods.

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- Kids eat more healthy foods, like fruits and vegetables.
- Kids have healthier weights.

Taming TV

This Guide helps parents swap TV-time for active playtime and reduce the effects of TV on kids.

- People who watch TV more than 2 h a day may have problems.
- Children may have trouble learning and not do well in school.
- Kids may have problems getting along with others, especially if they watch television programs made for adults.
- Many kids and parents who spend too much time watching TV have health problems, like diabetes and heart disease. Many also have excess body fat and eat less healthy meals and snacks.
- People may overeat when they eat while watching television because they pay attention to TV, not how much they eat.
- Individuals learn unhealthy food practices from television advertisements and from seeing favorite characters eat sugary, fatty foods.

Breakfast, the Right Start

This Guide helps get the whole family off on the right foot every day.

- Breakfast helps kids do better in school.
- Eating breakfast improves memory.
- Breakfast gives kids energy to run, play, learn, and grow.
- Breakfast eaters get more of the nutrients needed for good health.
- They have healthier levels of cholesterol in their blood.
- Breakfast eaters have healthier body weights.
- Breakfast skippers get so hungry they are likely to overeat unhealthy foods later in the day.

Best Drinks for Families

This Guide helps families go for tasty, guilt-free beverages. Having a sugary drink once in a while is fine. Many people drink more than is healthy. Having sugary drinks every day can cause problems for parents and kids.

- They get too few vitamins and minerals.
- They get too much sugar.
- They get more calories than they need.
- Having sugary drinks often may lead to weak bones, cavities, and too much body fat.

Play More, Sit Less

This Guide helps parents trim screen-time and get more family fun time. Getting more than 2 h of screen-time each day can cause problems. Too much screen-time can harm kids.

- They may have shorter attention spans and learning problems.
- Many have poorer reading skills.
- Children may misbehave more and have poorer social skills.
- Most sleep poorly and feel tired.
- Kids eat less healthy meals and snacks.
- Boys and girls gain excess body fat, which can lead to severe health problems.

Time to Play

This Guide helps families play more and have lots more fun together. Many kids and adults do not

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spend enough time in physical activity—they should get 60 min each day. Families get benefits like these when they are physically active.

- Playing together as a family promotes closer family bonds.
- Families who play together feel better about themselves, sleep better, have lower stress levels, fight off illness more easily, have fewer health problems, have stronger bones and muscles, have healthier blood pressures, and have healthier body weights.

Good night, Sleep right

This Guide helps families get enough sleep and wake up happy and rested. Many kids and adults do not get enough sleep. Kids who do not get enough sleep may have many problems.

- They have a harder time learning and remembering.
- Kids are more likely to fall and get hurt.
- Many are short-tempered and misbehave.
- Children may have excess body fat.

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Evidence and Justification for HomeStyles Curriculum and Delivery

2.5. Delivery Mode

HomeStyles Guides were designed to be delivered electronically (website in English and a mirror site in Spanish, by email, and/or eBook) or face-to-face by home visitation staff during regular home visits. An electronic delivery mode was developed because 80% of the U.S. population uses the Internet (up from 9% in 1995) [128], and according to the Federal Communications Commission, 87% of U.S. families with minor children have computer access at home [129].

The American Academy of Pediatrics supports home-based parent education programs [130] and research indicates that home-based programs hold promise for childhood obesity prevention [131], yet few materials focusing on key obesity prevention strategies are available. Varied delivery modes were used because parents need information source options that fit their lifestyles, learning styles, and desired format [128–133].

2.6. Guide Content

An extensive literature review was conducted to determine the most salient factors affecting childhood obesity to address in the home environment [116]. To further ensure that the guides addressed the most important topics, the advisory group was consulted.

- Three key areas emerged: diet, physical activity, and sleep.
- The vast majority of children spend time in childcare [134]; thus, a common thread woven throughout the guides was to help parents develop skills needed to advocate to their childcare providers for settings supportive of healthy weights.

2.7. Guide Development Process

The multi-step development process began with a literature review to establish an in-depth understanding of each guide's topic with a particular emphasis on the topic vis-à-vis families with preschool children (see these review articles as an example of the literature reviews [197,248]). Additionally, to permit application of Adult Learning Theory principles, focus groups (n = 139 parents of preschool children) were conducted in two geographic locations to explore parents' cognitions, barriers, supports, and modeling of behaviors associated with each topic [198].

Table 2. HomeStyles guide components

1. **Here Is What the Experts Say**
   All Guides start with a brief summary of evidence-based research that explains why the Guide's topic is important to health.
2. **Kids Copy Their Parents**
   This section helps parents remember they are their children's most important role model.
3. **Take a Minute**
   These sections give parents a chance to think about why the behaviors discussed in the Guide are important to them personally. These sections also provide opportunities to use motivational interviewing techniques to help families make simple changes to build healthier families.
4. **Here's What Other Parents are Saying**
   This section provides tips and ideas from actual families with preschoolers. It helps parents know they are not alone, and that other families have successfully made changes to improve their kids' health.
5. **Even More**

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This section provides more tips and ideas specific to the Guide to help parents raise happier, healthier, safer kids.

6. **Goal Setting**
   This section helps parents set small, attainable goals to improve their kids' health. Parents can set their own goal or choose from the examples other families have set.
7. **Remember**
   This section sums up the Guide. It also reminds families to take small, manageable steps and remember that the changes they are making are important for their family!

Content Cognitive Testing interviews with parents

- The purpose of the Content Cognitive Testing interviews with parents was to ensure guide comprehension, applicability, and acceptability.
- During the cognitive testing, parents were instructed to read a section aloud and then asked a series of questions to determine their overall understanding and impressions of the information in the section (what they liked, disliked, and would change) and the degree to which they felt the information would help parents like them engage in the recommended behaviors (e.g., eat family meals more often).
- After reading the entire guide, parents were asked whether they felt the guide would capture the attention of parents, would be useful to their families, and what improvements were needed. They also rated the guide's clarity, appeal, relevance, usefulness, and how interesting and motivating they felt the guide was, and how likely it would affect their practice of the recommended behaviors.

Application of Behavior Change and Motivational Interviewing Strategies

Behavior Change Strategy

A Outcome Expectations [91] Beliefs about the likelihood and value placed on the consequences of behavioral choices.

B Behavioral Capability [91] Having the necessary knowledge and skills to change a behavior.

C Self-efficacy [90,91] Confidence in one's ability to perform a behavior. Supporting Self-efficacy [2] Giving a person the opportunity to express self-confidence.

D Reinforcement [91] Outcomes that give support (or take away support) for performing a behavior. Most commonly positive reinforcement to reward an individual for making a behavior change.

E Self-regulation [91] Controlling oneself through self-monitoring, goal-setting, feedback, self-reward, self-instruction, and enlistment of social support

F Address Barriers [91,106] Identify real or perceived factors preventing behavior change. Also called Roadblocks.

G Observational Learning/Modeling [91] Learning to perform new behaviors by exposure to interpersonal or media displays of them, particularly through peer modeling

H Eliciting Change [106] Examines reasons for changing a behavior.

I Exploring Importance [106] Examines importance of changing a behavior.

J Goal-Setting [90,91,106] Setting goals for changing a behavior (related to Self-regulation).

K Rewards [106] Identifies benefits of changing a behavior that are most important to a person.

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L Relevance [90,106] Examines why changing behavior is important to a person.
M Risk [106] Identifies the risks that a person feels are most important to avoid.
N Repetition [106] Revisits questions when a person indicates resistance/ambivalence to changing a behavior.
O Reflection [106] Asking open-ended questions that give a person an opportunity to think and reflect.
P Normalizing [106] Helping a person to understand that personal feelings/experiences/challenges while making change are common and normal.
Q Decisional Balance [106] Comparing "good" and "not so good" outcomes about changing a behavior.
R Readiness to Change Scale [106] Rating change reading using a 10-point scale where 1 = definitely not ready to change and 10 = definitely ready to change.
S Summaries [90] Reminds a person of main aspects of changing behavior made in the current session.
T Specifying Target Behaviors [90] Identifying the specific behaviors that need to change.
U Self-Monitoring [91,106] Keeping track of specific behavior that is targeted for change each time it occurs.
V Stimulus Control [90] Changing and structuring the environment (usually the home) to make it easier to perform a behavior (e.g., eat healthier foods) or avoid performing a behavior (e.g., eating unhealthy foods).
W Positive Reinforcement Strategies [90,106] Using praise and recognition of changes that have already occurred to encourage change.

Conclusions

Preliminary testing of the HomeStyles guides suggests that the format is well-received and perceived both by parents and Home Visitation staff as an effective tool for helping parents of preschoolers build a healthy home environment. Collaborating with stakeholders throughout the design process and incorporating motivational interviewing techniques and adult learning theory likely helped ensure that the learning experiences and strategies employed will be relevant and effective for the target audience. Further research is underway to test these guides as part of an in-home randomized control trial.

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