# World Health Organization
# Growth Standards


# BC Training Module
# PowerPoint Speaking Notes


# December 2010

**Slide 1          Title Page**

**Slide 2          Purpose of the Training Module**
This training module has been developed to provide public health practitioners with information to support their practice on using the new WHO growth charts adapted for Canada.

**Slide 3          Training Module Objectives**
After reviewing the components of the training module, practitioners should have a good understanding of the new WHO Growth Charts, including: the importance of using serial measurements to monitor growth, key differences between Centre for Disease Control (CDC) growth charts and WHO Growth Standards; how to plot and interpret growth and when to refer for growth concerns; and how to communicate growth with parents and caregivers. Resources to support healthy eating and healthy growth have been provided for both health providers, and parents and caregivers.

**Slide 4          Components of the Training Module**
This slide outlines all the materials included in the training module including the power point, the speaking notes and additional information in the appendices document. Various pages can be printed from the appendices as reference materials to support ongoing practice.

**Slide 5          See Appendices for Pre and Post Quiz and Answer Key**
A quiz and answer key are included in the appendix. The questions align with the training objectives and are designed to be used as a pre test, a post test or both a pre and post test.

**Slide 6          Why is BC adopting the new WHO Growth Charts for Canada?**
In 2006 and 2007, the World Health Organization released new international growth charts depicting the optimal growth of children from birth to age five years and charts for monitoring the growth of children and adolescents, 5 - 19 years. The WHO Growth Charts are the gold standard for measuring growth and have been recommended to replace the 2000 CDC growth charts.

In February 2010, four leading health organizations in Canada,  Dietitians of Canada, the Canadian Pediatric Society, the College of Family Physicians of Canada and the Community Health Nurses of Canada released a collaborative statement endorsing the adoption of the new WHO Growth Charts entitled *"Promoting Optimal Monitoring of Child Growth in Canada: Using the New WHO Growth Charts".* This statement can be accessed on each of the organizations websites, and all the materials are available on Dietitians of Canada website.

The BC Ministry of Health Services (MOHS) also supports the recommendation that all health professionals adopt the new WHO Growth Charts to monitor and assess growth patterns of infants, children and adolescents.

**Slide 7          What is the Purpose of a Growth Chart?**

A growth chart is a valuable tool to support growth monitoring. Growth monitoring is an important part of routine care for infants, children and adolescents.  Growth monitoring supports early identification and intervention for children with growth disturbances, thereby helping to reduce risk of childhood obesity and other effects of poor growth.

A growth chart by itself is not intended to be used as a diagnostic tool.  Serial measurements plotted on a growth chart that include length or height, weight, head circumference, and weight to length or BMI, will identify a pattern of growth (curve) for that child. Additional assessment information (slide 28) and clinical judgment, in concert with the findings from the growth chart are required to fully assess the growth and overall health of a child.

Although a single point on a curve can be used as a nutrition screen, as stated, serial measurements plotted on a growth chart are a far more sensitive indicator to use to assess a child's growth and health.

**Slide 8          The New Growth Charts for Use In Canada**

The next section will be highlighting information on the new growth charts available for use in Canada.

**Slide 9          WHO Growth Charts for Canada**

The Dietitians of Canada worked with the WHO to adapt and develop the WHO growth charts for use in Canada. The adaptation included reformatting into a portrait view consistent with current practice (CDC growth charts were used in Canada to measure children since 2000).

The new charts are, for birth to 24 months, Weight-for-Age, Length/Height-for-Age, Weight for Length, and Head Circumference. For children 2 to 19 years of age, there are charts for BMI for age, Height-for-Age and Weight-for-Age (Weight-for-Age is available until 10 years of age only).

It is not recommended to use the Height-for-Age and Weight-for-Age charts after 10 years of age due to difficulties distinguishing if a change in growth is due to changes in weight or changes in height, especially around the pubertal growth spurt. If growth has been monitored using Weight-for-Age, a switch to BMI should occur around 10 years of age. The 2 to 19 year old charts Weight-for-Age do not include space to record Weight-for-Age after this time period. Height for Age can be recorded to 19 years of age.

The new percentiles on the Canadian WHO Growth Charts have also changed from the CDC charts. The new percentiles are: 0.1$^{st}$, 3$^{rd}$, 15$^{th}$, 50$^{th}$, 85$^{th}$, 97$^{th}$, 99.9$^{th}$ percentile. The vast majority of children will fall between the 3$^{rd}$ and 85$^{th}$ percentile on the new charts. The new charts include the 0.1$^{st}$ and 99.9$^{th}$ to improve the ability to detect the extremes of underweight or obesity. The WHO Growth Charts for Canada are available to download from (www.dietitians.ca/Secondary-Pages/Public/Who-Growth-Charts.aspx).

**Slide 10          WHO Growth Charts for Canada - Birth to 24 months**
This slide shows the blue and pink charts for this age group. The pink growth chart on your left shows the Weight-for-Age and Length-for-Age growth curves. The blue chart on your right shows the Head Circumference and Weight-for-Length growth curves.

**Slide 11          WHO Growth Charts for Canada 2 to 19 years**
This slide shows the blue and pink charts for BMI-for-Age for this age group. Public health nurses may not have to use these charts very often as most will not weigh and measure children after the age of 18 months.

**Slide 12          Understanding the New Growth Charts**
This next section will identify why these charts are considered growth standards internationally; the key differences between the WHO charts and CDC charts; and how the new growth charts can support health care provider practice with different population groups.

**Slide 13          The WHO Growth Charts**
The growth charts were developed using two different methodologies: birth – 5 years and 2-19 years.

1. The *2006 WHO Child Growth Standards* for birth to 5 years illustrate how healthy children "should" grow, not how a sample of children in the US 'did' grow.

The WHO charts were developed based on a primarily breastfed population, and it is recommended to use these to monitor both breastfed and non-breastfed infants and children from birth to 5 years of age as they describe the growth of infants and children with no economic, health or environmental limits to growth. These charts reflect optimal growth and therefore portray a rate of growth that can serve as a goal for all healthy Canadian infants and children regardless of ethnicity, socioeconomic status and type of feeding.

2. The *WHO Reference 2007* growth charts are reconstructed from historical US data prior to the population trend of increased rates of childhood obesity. Data points suggestive of high adiposity were excluded. Data was also supplemented using WHO child growth standards from 18 to 71 months.

These WHO BMI-for-Age charts were designed to more closely align with optimal growth and do not represent an overweight population as the norm for healthy growth and development.

**Slide 14          Key Differences between WHO and CDC Growth Charts**
The table included on this slide includes key differences between the WHO growth charts and the CDC growth charts worth noting.

The 2006 WHO Growth Standards were developed using longitudinal data collected in the WHO Multicentre Growth Reference Study (www.who.int/childgrowth/en/).  This study followed more than 8,000 relatively affluent children from six countries (Brazil, Ghana, India, Norway, Oman, USA) raised under optimal health conditions.

The health conditions are as follows:
- exclusive or predominantly breastfed for ≥ 4 months
- introduction of complementary foods between 4- 6 months
- continuation of partial breastfeeding ≥ 12 months
- immunized and receiving routine paediatric care
- non smoking mother

It was found that with these optimal conditions, children were a lighter, taller population regardless of racial and ethnic background. There were minimal differences in the rates of linear growth observed among the 6 countries. The study found that there were more differences in linear growth within the countries than there was between countries.  Therefore, it is recommended that the new WHO charts can be used for any child regardless of ethnicity including Asian children.

The CDC growth charts had approximately 50% ever breastfed children. The charts were constructed using cross sectional data from various studies with children being measured only once in the study period, starting at 2 or 3 months of age. The curves prior to 3 months of age were constructed based on a mathematical formula rather than based on the actual growth measurements of children.  The charts were also constructed using a sample of children in a population experiencing a high incidence of childhood overweight/obesity.

The other significant difference with the new charts, are the new growth curves or lines on the WHO charts. The WHO curves are wider than the CDC charts, and include the $0.1^{st}$ and the $99.9^{th}$ percentiles. These new lines will assist in identifying children who are experiencing extreme growth abnormalities. Only 1 in 1000 of children will grow at this curve. The inner curves on the WHO growth charts ($3^{rd}$, $15^{th}$, $50^{th}$, $85^{th}$, $97^{th}$) are farther apart than on the middle curves in the CDC growth charts ($10^{th}$, $25^{th}$, $50^{th}$, $75^{th}$, $90^{th}$). Therefore those children that do cross even one percentile line will have greater changes in growth than seen on the CDC charts.

**Slide 15          Breast fed versus Formula fed on the WHO Growth Charts**
The growth curves on the WHO Birth to 24 month chart reflect the more rapid gain in weight for a breast fed infant in the first 6 months of life and then slower growth in the second 6 months of life. The formula fed infant will be opposite, growing slowly in the first six months and then more rapidly in the second six months of life.

This initial slower growth seen with formula fed infants on the new charts may lead health care providers to assess that this formula fed infant may be failing to grow. Additional assessment information (slide 28) will validate whether the pattern is due to the use of the WHO growth chart versus an underlying issue with growth.

Because of the construction of the WHO growth charts, health care providers may classify more children as:
- underweight or wasted in the first 6 months
- stunted, overweight and obese from 6-12 months

Additional assessment information is critical to accurately assess an infant or child's growth. The differences in growth between a breastfed and formula fed infant will be illustrated in the case study presented later in this training module.

**Slide 16        Pre-Term Infants and Very Low Birth Weight Infants**
The new WHO Growth Standards defined full term infants as having a gestational age ≥ 37 completed weeks. Term low birth weights (< 2500 g) were included in the development of the WHO charts; infants born at very low birth weights were excluded. The WHO charts can be used to monitor growth of preterm infants (< 37 weeks gestation at birth), low birth weight and very low birth weight after discharge into the community using corrected gestational age until the infant is 24 months. Information about how to correct for gestational age is on slide 23.

Additional charts to assess growth of preterm and LBW infants in the NICU or early post-discharge setting include:
1. Fenton's updated Babson and Benda chart for tracking growth from 22 weeks gestational age to 10 weeks post term.
2. Infant Health and Development Program Charts for tracking growth from 2 to 38 months.

**Slide 17        Disorders that can affect growth**
There are existing disease specific charts used to measure children with disorders.  Most disorder specific charts have been developed from very small populations and relatively old data. These may not reflect newer treatment protocols and may conceal an existing nutrition or growth problem.

The WHO growth charts, although constructed based on a healthy term population, are considered the best available tool to monitor growth of children with developmental disorders or chronic diseases. Specialized charts, for example Prader Willi or Down Syndrome charts, can be used in conjunction with the new WHO charts.

**Slide 18        Body Mass Index (BMI) - 2-19 years**
BMI is the best choice for assessing body weight relative to height in children over 2 years of age. In pediatrics, BMI is age and gender specific and is plotted on the appropriate chart to determine the BMI-for-Age percentile.  Serial measurements are required to identify the BMI-for-Age growth curve which is required to assess growth in this age group.  One BMI plotted point can be used as a nutrition screen if this is all the information you have.

At 5 to 6 years of age, body fatness normally declines to a minimum, which can be seen in the BMI-for- Age chart. After this age, BMI increases, called adiposity rebound.

Early adiposity rebound (occurs earlier than this age period) can be identified using the growth chart, and can be an indicator of increased risk for adult obesity. At 19 years of age, the BMI value on the 85th percentile would correspond to the adult cut-off value for overweight, BMI > 25.

**Slide 19          Using Growth Charts**
The next section will include information on growth monitoring, including recommended essential activities, steps to plot growth and correcting age for prematurity.

**Slide 20          What is Growth Monitoring?**
One time measurements of weight, length/height reflect a child's size only and may be used to screen children for nutritional risk using cut-off criteria. *(Recommended Cut-off Criteria is presented on slide 33).*

Serial measurements of length and weight over time reflect a child's growth pattern. This pattern, when compared against a growth standard, is an important indicator of whether a child:
- is growing consistently;
- is trending towards a growth problem or concern that should be addressed; or
- is showing a growth concern or abnormality in growth

Due to rate of growth in the first two years of life, it is recommended that growth be monitored using all three measures, Weight-for-Age, Length-for-Age and Weight-for-Length, as well as Head Circumference. It is important to be able to quickly identify issues such as feeding practices, recent and sudden illnesses or underlying chronic diseases that will impact the growth of a child.

The Canadian Paediatric Society has developed guidelines for frequency of measuring and plotting growth for health care providers based on best practice. Providers may also want to monitor children and adolescents more frequently during puberty as this is also a time of rapid growth.

**Slide 21          Essential Activities**
To assess the pattern of growth, these are identified as essential activities or steps. All these activities done accurately and regularly will lead to interpreting accurate growth curves or trends for a child, supporting children to grow and develop to what is considered 'normal' for their body size.

**Slide 22          Steps to Plot Growth**
Accurate and reliable measurements are fundamental and require:
- A standardized measurement technique
- High quality equipment that is accurate and regularly calibrated
- Trained measurers who are consistent and precise in technique

It is recommended to use standardized measurement techniques and high quality equipment as measurement errors, even by a small margin of error plotted on a growth chart, can significantly affect the interpretation of a child's growth curve, and subsequently, the interpretation of the growth and health of a child.

A calibrated length board is particularly important especially in the early years when an infant or young child needs to be laid down and held steady to ensure an accurate length measurement.

Age errors are also a common source of plotting mistakes. If you refer to your growth charts, the birth to 24 months chart has two week increments on the age axis. It is important to plot according to age in weeks in the first year of life given that growth can change very rapidly.

Further information on the recommended tools and techniques for weighing and measuring infants and children is included in the appendix. The information includes what such tips as 'weigh infants with a dry diaper' and 'measure length using a calibrated board with two trained people'.

**Slide 23          Correcting Age for Prematurity (<37 weeks)**
As per normal practice, the age of the premature infant will have to be corrected in order to plot measurements on the growth chart. The corrected age is used until the infant reaches 24 months postnatal age. The calculation for corrected postnatal age is based on 40 weeks gestation and shown here on slide 23

**Slide 24          Describing a Plotted Point**
When discussing a child's growth pattern with a parent or caregiver and to help their understanding of their child's growth, it will be necessary to describe the plotted points on the chart. This slide describes one plotted point A and one plotted point B.

When describing a growth curve, use the same descriptive language. For example, if the growth curve consistently follows the 97th percentile, you would describe the child as growing consistently along the 97th percentile.

**Slide 25          Growth Assessment and Monitoring**
The next section provides information on normal growth, how to assess and interpret growth using the new growth charts, and what actions are required if a growth concern or abnormality is identified.

**Slide 26          Normal Growth in Healthy Infants and Children**
The 50th percentile curve is not considered the "norm" on the new WHO charts. Healthy children will usually grow between the 3rd and the 85th percentile without any cause for concern as this may be their usual or normal pattern of growth. Growing between these percentiles is considered 'normal' regardless of the ethnicity of the child.

A child will "typically follow the same growth pattern over time" with the exception of some children experiencing rapid changes in growth in the first two years of life and during puberty. That is, there may be a 'normal' shift during these periods of time (up to but *not* crossing two major percentile curves).

All three measures of weight, length/height and weight for length tell you important information to assess growth.  These will tell you if the child is growing and gaining weight, whether the weight gain is too little, too much or just right for the length or height of the child.

It is also very difficult to 'eyeball' whether a child's growth is consistent. It is the comparative measures that accurately portray a child's growth.

The head circumference of most children will track within one percentile and reach adult head circumference by 2 years of age.

**Slide 27          Assessing Measurements on A Growth Chart**
There are several steps required to assess growth. The first is to look at the measurements plotted on a chart. It is important when assessing a child's growth on a chart that *each* measure or serial measures is assessed (Weight-for-Age, Length/Height for Age, Weight for Length, Head Circumference or BMI), as well as the relationship between each measure.

Look at all the measures collectively to give you a good picture of growth. This includes identifying the percentile rank (0.1st, 3rd, 15th, etc) of each, and if the weight and length/height is proportional. If you have enough serial measurements, use the same type of thinking and apply to the growth curve. Is it consistent, is it climbing, falling? Do any of the measures fall within the cut off indicators?

The next step is to gather additional assessment information from the parent or caregiver and/or other health care providers shown on the next slide.

**Slide 28          Additional Assessment Information**
There are many factors that will impact the growth of a child. Factors such as: parental height, ethnicity, gestational age, actual feeding practices (breast, formula or mixed feeding, appropriate introduction and progression of solids). The presence of chronic or acute health issues, and/or stressful life situations, including a mother with postpartum depression will have a significant impact on growth.

This information creates a picture of the child's situation within their home and community. No one knows the infant or child better than the parent. If parents/caregivers raise issues or concerns, it is important to acknowledge and include this information to support your overall professional judgment of the child's growth and health.

**Slide 29          Interpreting Growth**
Use information from slide 26, 27 and 28 to confirm your interpretation of the growth of the child. The questions posed here are to assist in confirming your growth assessment.

Information from the plotted growth chart, including the curve and the percentile rank, the assessment information and your professional judgment, will guide your assessment and interpretation of a child's growth including appropriate next steps to monitor the child and whether any referrals and/or interventions is required.

**Slide 30        Normal Growth Patterns – Routine Monitoring**

This slide illustrates three different patterns of growth that would be considered normal as they consistently follow or parallel the 50th percentile. In these cases, routine monitoring is recommended.

**Graph #1** shows the growth line of a healthy breastfed infant growing at the 50th percentile. *Healthy breastfed infants will typically grow consistently parallel to the 50th percentile on the WHO Growth charts as the breastfed infant is the norm.*

**Graph #2** shows the growth line of a low birth weight infant growing between the 3rd and the 15th percentiles.

*Breastfed infants born with low birth weight will be expected to track along the lower percentiles because exclusive breastfeeding does not change the fact that they were small for age at birth. Children of different ethnicities may also grow consistently along the lower percentiles.*

**Graph #3** shows the growth line of child growing above 85th percentile.

*There are children that may grow normally above the 85th percentile. Given that a child is growing above a cut off indicators identifies that further assessment is required to determine appropriate monitoring and further actions or steps required.*

*First Nations children may plot higher on the WHO charts than on the CDC charts (between the 85th and the 97th percentiles).*
*This may be considered normal growth because:*
- *The few growth studies among North American Aboriginals suggest that First Nations and Inuit children may have growth patterns that differ somewhat from normal standards.*
- *They tend to be heavier at birth with a weight to length/height ratio greater than the 50th percentile.*

**Slide 31        Normal Variability in Percentile Curves**

The plotting on these growth charts is indicating a crossing of up to two major percentiles. The growth lines on both the Length-for-Age curve and the Weight-for-Age curve indicate a gradual shift from the 50th percentile to just before the 3rd percentile within the first year of life.

This can be considered normal during the first two years of life and puberty when growth is rapid. However, follow up and monitoring is required prior to the shift crossing two major percentiles.

**Slide 32        What to Look for When Assessing Growth Concerns**

When the child's growth pattern is indicating a concern, it is most important to consider the age at when the shift occurred, how long it took for the shift to occur, how big the shift is, and any underlying factors that may be contributing to the shift including information gathered from parents (slide 28).

In a previous slide, information was presented that the curves on the new WHO chart are wider so any crossing of the major percentile lines is a greater change in growth than crossing two centile lines on the CDC charts. Therefore any shift, requires an assessment.

**Slide 33    Recommended Cut Off Criteria - Indicators for Further Assessment**
The new WHO charts identify recommended or reference cut off criteria to assist health care providers in understanding when a child's growth pattern may require further assessment and intervention or referral for further investigation. They are not diagnostic criteria.

This table shows the predetermined percentiles or cut-off points for each of the growth charts birth to 24 months and for 2 to 19 year. Note that the cut-off criteria for determining overweight and obesity status are different for children birth to 5 years and 5 to 19 years. Longitudinal patterns of growth should always be considered when applying cut-offs.

When a child's growth has been identified as a concern, it is important to use language that is accepted by the parent as supportive of actions necessary to address the growth concern. For example, instead of 'fat' perhaps use 'gaining weight faster than expected from his usual pattern'.

**Slide 34    What is a Growth Concern?**
Although the WHO has recommended cut off criteria as indicators of a potential growth concerns, serial monitoring of growth and assessment of unexpected changes in growth pattern is the most useful practice that can identify growth concerns. This slide identifies growth concerns based on the pattern or curve plotted on a growth chart. These growth concerns align with the recommended cut off criteria identified in the table on the previous slide.

**Slide 35    When Further Observation Is Required?**
Increased monitoring and observation is required when a moderate growth concern is identified, that is, the growth pattern can be explained and corrected with further guidance and without medical intervention. These are situations in a child's life where guidance on areas such as feeding practices or food choices is needed, or where there has been a short term illness, or a short term stressful family situation that results in a disturbance in the growth pattern.

An understanding of the context is important when interpreting growth patterns. The shift in the percentile seen could be normal if it occurs in the first two years or during puberty, but an assessment is required to rule out any other reasons. As the practitioner, you are the best judge to identify how often to bring the parent and child in to continue to assess growth until you believe the issue(s) has been resolved and the infant/child's growth is resuming a normal pattern of growth for that child.

A registered dietitian is a useful resource for assisting with any feeding practice issues. Your health authority will have protocols to access a dietitian in your region. This may require using HealthLink BC registered dietitians (8-1-1).

**Slide 36          Moderate Concern – Monitoring Is Required**

This slide illustrates three patterns of growth that may indicate a growth concern or disturbance. These are considered to be moderate growth concerns because they are significant enough changes in growth to require assessment, support appropriate family actions and monitoring until correction occurs.

**Graph #1 and 2** The growth curve crosses one major percentile curve (the 15th percentile).

*Graph one identifies a shift away from the 50th percentile. A shift away from the 50th percentile may indicate a problem.*

*Graph 2 shows a shift towards the 50th percentile. This could indicate a good shift. It may also indicate a problem if this shift is abnormal for the child's normal growth trend.*

As stated previously, any changes in weight or length/height need to be investigated **before** a child crosses two major percentile curves

**Graph #3** This graphs shows a consistent pattern of growth at or just below the 3rd percentile and also shows a consistent pattern of growth at or just above the 85th percentile

Use of the recommended cut-off criteria (slide 33) would indicate that a child with this growth pattern or curve may have a growth disturbance and that further observation and assessment is required. These curves are only considered moderate concern because growth is consistent. The children in these cases may require further medical investigation based on additional information gathered and your professional judgment.

**Slide 37          When Further Investigation is Required**

Medical investigation is required whenever there is an unexplained growth curve or a rapid change in growth, or the potential explanation of the change in growth requires medical investigation such as with a chronic medical condition. A referral should be made to the appropriate resources when a growth pattern is identified as a high concern.

The next three slides are examples of a growth concern where medical investigation and a referral are required**.**

**Slide 38          High Concern – Referral Required**

Any sharp incline in the growth line is of high concern and represents a very significant change in the child's growth.

The growth line on the graph was tracking along the 50th percentile when it started to rise sharply crossing the 85th percentile and then continued to rise. Given the age when pattern began, the direction of the change, the time period the shift occurred, the number of percentile shifts, medical investigation and a referral is required in this situation.

**Slide 39          High Concern – Referral Required**

Any sharp decline in the growth line is of high concern and represents a very significant change in the child's growth

The growth line on the graph was tracking consistently between the 50th and 85th percentiles when it fell sharply, crossing the 50th and the 15th percentiles and then continued to fall.  Again, any assessment needs to take into account, the age of the child, when the pattern began, the direction of the change, the time period the shift occurred, and the number of percentile shifts. Given all these parameters, this child's growth needs to be investigated before a child crosses two percentile curves. A referral to an appropriate source is recommended.

Occasionally a health care provider may not have enough serial measurements that clearly shows a shift across two lines, however, the plotted measurement(s) may indicate (cut off criteria) that there is a high growth concern and investigation should be undertaken.

**Slide 40          High Concern – Referral Required**

A flat growth line is of high concern because it indicates that a child is not growing. During rapid stages of growth, such as the first 6 months of life, even one month flat line growth represents a possible concern. Medical investigation and referral is required.

**Slide 41          Discussing Growth with Parents and Caregivers**

This next section provides information and supports to discuss growth with parents and caregivers when a child is growing consistently, as well as when there are growth concerns identified.

**Slide 42          Principles for Talking to Parents about Growth**

Discussing growth with parents and caregivers, especially if the child's growth pattern reflects a potential problem, can be a sensitive issue. The following are useful principles using a motivational interviewing approach while engaging in discussions with parents and caregivers.

Adopting a non-judgmental attitude and using a motivational interviewing approach will help to build rapport and trust between you and the parent or caregiver. It is critical to use neutral language and address issues or concerns constructively and sensitively when discussing the growth of the child. Parents and caregivers may not be open and receptive to the discussion if there is judgment and feelings of guilt.  Supporting parents and their families to identify and take action on healthy lifestyle changes will benefit the child and the overall health of the family.

*The following can be used to discuss growth with a parent or caregiver where the child's whose growth is greater than expected (gaining weight faster than expected).*

*"Children usually grow predictably. Your child's growth has changed from his previous pattern. We need to explore why this might be happening. How are you feeding your child (formula or breastfed)? What types of foods is your child eating? Has your child's appetite changed recently? If it has, can you tell me why you think it may have changed? Do you have any concerns about his health?  Any recent illnesses? Any changes in your life?  Do you have questions about your child's growth?"*

This can be an opportunity to reinforce consistent growth and provide anticipatory guidance on supporting healthy feeding and healthy growth and development.

**Slide 43 and 44          Talking to Parents/Caregivers**
Discussion of a child's growth pattern should become a routine part of care. The next two slides include suggestions on how to approach discussions with parents and caregivers to promote a positive attitude on healthy growth in children.

Parents and caregivers need to understand what healthy growth and development is. Discussions should be initiated at the first well baby visit and continue at each subsequent visit. Use language that will be meaningful to the parent.

*Here is an example using a child who is growing < 15th percentile:*

*a) When you are unsure if this pattern is normal:*
    *"Your child is smaller than many other children. We will see if this pattern continues".*
*b) When describing this consistent growth pattern:*
    *"Your child is growing consistently (or predictably) and is smaller than many other children. That pattern is likely to continue". (The nurse could discuss parental height if family has a shorter stature).*
*c) When describing an inconsistent growth pattern you could:*
    *"Your child's growth is showing some shifting. Sometimes this happens. Let's follow this and see what the pattern will be. Continue to feed him/her as we discussed. That will help him/her get the body that is right size for him or her.*

It is important to agree on actions to improve the child's growth that are feasible for the parent or caregiver. Limit the number of actions so it is not so overwhelming. Encourage follow up.

*The following approaches are examples of how you might do this.*
*a) Approach for a child who is underweight:*
    *"You may have noticed that your child has become very thin. See how the growth line on this chart has gone sharply down. That shows that she has very low weight for her height. There are ways to help her gain weight – we can talk about some of the options if that is all right with you."*

*b) Approach for a child who seems to be at risk for becoming overweight:*
    *"You may have noticed from the record we have been keeping on your child's growth that he is tending to gain weight quickly. See how the growth line on this chart has gone upward. That shows that his weight is high compared with his height. If it's all right with you, can we talk about what some of the reasons might be for this weight gain and make a plan together to slow down the rate of gain."*

**Slide 45          Resources**
The appendices included with this power point presentation contain lists of resources for both parents and caregivers to access if they would like more information on healthy eating/feeding practices. The health care providers include resources that include the newborn care pathway, websites to support motivational interviewing and providing anticipatory guidance to parents and caregivers.

**Slide 46 – 58     The Case Study**
A set of instructions is included on the first slide that will assist the group to work through the case study. The case study includes a scenario on Baby Georgia. The goal of the case study is to use all the information provided in this training module to plot her serial measurements, assess her growth, identify if any growth concerns exist, and identify what anticipatory guidance you would provide to the parent.

Included in the case study are questions and answers based on baby Georgia's measurements plotted on the appropriate birth to 24 month growth charts. These plotted charts will highlight what to expect when plotting on the new WHO charts. Also included is a comparative slide highlighting the different growth curves when Weight-for-Age is plotted on the WHO chart and on the CDC chart.  Refer to Appendix B for additional information and to support discussion on the case study scenario.

**Slide 60          Additional Reference Materials**
Dietitians of Canada is hosting a variety of materials to support health care providers with background information on the new WHO charts, as well as the growth charts for download on their site.

Recent adaptations to the growth charts have been done to support better download including only black and white charts.