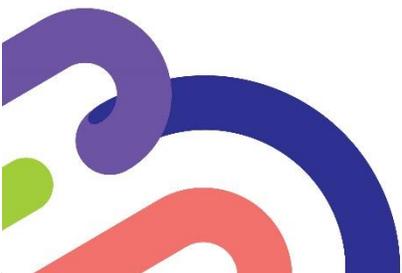




Core WIC Training

Anthropometrics





Questions? Contact us:

Email: WAWICTraining@doh.wa.gov

Phone 1-800-841-1410

(Ask for the Communications and Training Team)

Visit our website: [Information for WIC Staff | Washington State Department of Health](#)

This institution is an equal opportunity provider.
Washington WIC doesn't discriminate.

Anthropometrics are an important part of the WIC assessment.

In this section, we'll explore how to assess prenatal weight gain for pregnant participants, and growth for infants and children.

Why: Assessing growth and prenatal weight gain, identifying nutrition risks, nutrition education needs, referrals, and planning future appointments is an important part of the certifier's role. By experiencing and practicing the growth chart or prenatal weight gain conversation, WIC staff will be more comfortable having this conversation with participants and caregivers.

What: By the end of this training you will have:

- Reviewed the reasons why anthropometrics are an important part of WIC.
- Examined policy and documentation requirements for weighing and measuring pregnant participants, infants, and children.
- Reviewed pregnancy weight gain recommendations and explored how prenatal weight status and pregnancy weight gain relates to pregnancy outcome.
- Discovered health and nutrition factors that may influence growth for infants and children.
- Practiced how to read prenatal grids, infant and child growth charts and have a participant-centered conversation about them.

Reference Materials: Washington WIC Policy and Procedure Manual: [Volume 1, Chapter 9 – Anthropometrics](#).

Institute of Medicine, 2009. *Weight Gain During Pregnancy: Reexamining the Guidelines*. Washington, D. C. National Academies Press.

Learning Center curriculum: [DOH STATE WIC Anthropometrics Curriculum](#)

Weighing and Measuring are an Important Part of WIC

Happiness makes up in height for what it lacks in length.

Robert Frost

WIC's measurements:

- Help assess weight gain for pregnant participants.
- Help assess growth and development for infants and children.
- Can reflect a person's health and nutrition status.
- Are potential eligibility factors.
- Help identify poor nutrition practices or nutrition needs.
- Show the positive impact of WIC.
- Are reported to the Center for Disease Control (CDC) for data and research purposes.

Accurate measurements are important:

- All staff who weigh and measure review the Learning Center course, [DOH STATE WIC Anthropometric Curriculum](#).
- Review WIC Policy Manual, [Volume 1, Chapter 9 – Anthropometrics](#).
- See the [Proper Equipment & Accurate and Appropriate Techniques](#) reference sheet in the Appendix and the [Staff Tool: Buying Height and Weight Equipment](#) on the website.

Measurement Policies for Pregnant Participants:

Policy:	Information:
1. Staff must weigh and measure all participants, including pregnant participants at each certification and mid-certification health assessment appointment. (Waiver in place)	These appointments include: <ul style="list-style-type: none"> • Initial Certification (IC) • PE-Complete Assessment • Subsequent Certification (SC) • Mid-certification Health Assessment (Mid Cert HA)
2. You have 60 days to take measurements (or get them from the health care provider) for pregnant participants who are presumed eligible. (Waiver in place)	Presuming the pregnant participant eligible gives the participant time to go to the doctor to get measurements and bloodwork done.
3. Staff must weigh pregnant participants once each trimester and enter the weight in Cascades. (Waiver, encourage to get from medical provider)	This allows WIC to follow the pregnant participant's weight gain through pregnancy and share the progress toward the goal.

4. Have pregnant participants remove shoes and heavy outer clothing.	
5. Take standing measurements using the “adult” equipment for measurements.	Standing height – stadiometer Standing weight – adult scale

Prenatal Weight Status and Weight Gain Relate to Pregnancy Outcome

WIC weighs pregnant participants often to promote healthy weight gain and optimum nutrition for adult and baby.

Current research shows that being a healthy weight before pregnancy and gaining the recommended amount of weight during pregnancy:

- Leads to better birth outcomes for both the adult and baby.
- Helps pregnant participants prevent future health risks by decreasing the risk of being overweight.

Risks for adult and baby related to pre-pregnant weight status and weight gain during pregnancy.

<p style="text-align: center;">Underweight pre-pregnant <i>Risk factors:</i> BMI < 18.5</p> <p>Adult: Preterm birth C-section delivery</p> <p>Infant/Child: Small for gestational age Low birth weight Infant death (higher risk for low birth weight)</p>	<p style="text-align: center;">Low weight gain <i>Risk factors:</i> Low Weight Gain - BMI < 18.5 (HR 2nd & 3rd tri) Low Weight Gain - BMI 18.5 - 24.9 (HR 2nd & 3rd tri) Low Weight Gain - BMI 25.0 - 29.9 (HR 2nd & 3rd tri) Low Weight Gain BMI >= 30 (HR 2nd & 3rd tri)</p> <p>Adult: Preterm birth Decreased initiation of breastfeeding</p> <p>Infant/Child: Small for gestational age Childhood asthma (complication from preterm)</p>
<p style="text-align: center;">Overweight or at Risk of Overweight <i>Risk factors:</i> BMI > 25</p> <p>Adult: C-section delivery Gestational diabetes Hypertension/preeclampsia/eclampsia</p> <p>Infant/Child: Large for gestational age infant High birth weight</p>	<p style="text-align: center;">High weight gain <i>Risk factors:</i> <i>High Weight Gain 1st Tri</i> High Weight Gain 2nd & 3rd Tri (high risk)</p> <p>Adult: C-section delivery Weight retention (from 3 months to 3 years) Preterm birth</p> <p>Infant/Child: Large for gestational age infant Childhood obesity</p>

Potential future health risks for pregnant participants due to overweight and obesity:

Hypertension	Diabetes	Stroke	Osteoarthritis
Gallstones	Coronary heart disease	Cancer	Sleep apnea

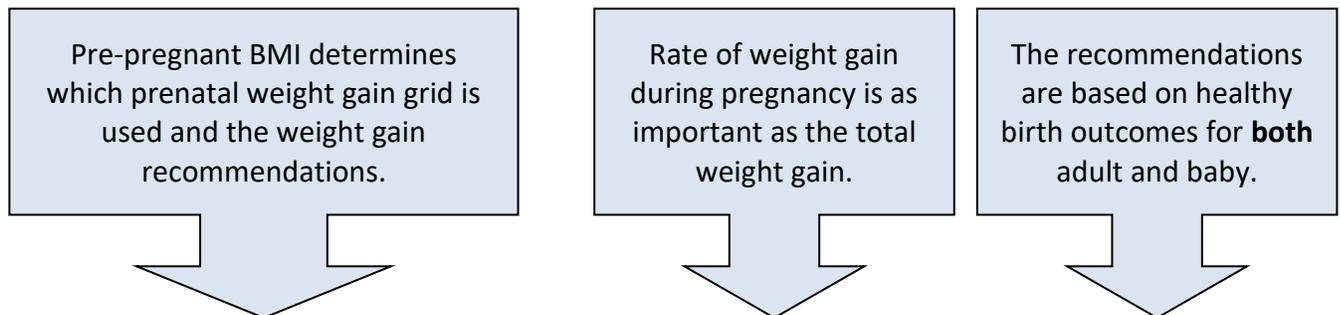
WIC doesn't recommend weight loss during pregnancy for any pre-pregnant weight status. Weight loss during pregnancy can be a sign of dietary practices or health conditions that could cause poor pregnancy outcomes. The pregnant participant needs adequate nutrients to improve/maintain health and the infant relies on adequate weight gain during the 2nd and 3rd trimesters for healthier birth weight.

Pregnancy Weight Gain Recommendations

WIC uses the 2009 American Institute of Medicine (IOM) pregnancy weight gain recommendations.

These recommendations:

- Are **based on pre-pregnant weight status** (underweight, normal weight, overweight or obese).
- Reflect the weight gain associated with the **best results for adult and baby** – both for immediate birth outcomes and long-term health outcomes.
- Include recommendations for pregnant participants having one baby (singleton) and more than one baby (multiples).



Recommendations for pregnant participant having one baby:

Pre-pregnant BMI category and Cascades weight gain grid	Recommended rate of weight gain	Recommended total weight gain
Underweight BMI < 18.5	1 st Tri = 2 - 6 lbs. 2 nd /3 rd Tri > 1 lb./wk.	28 – 40 lbs.
Normal weight BMI 18.5 – 24.9	1 st Tri = 2 - 6 lbs. 2 nd /3 rd Tri = 1 lb./wk.	25 – 35 lbs.
Overweight BMI 25 – 29.9	1 st Tri = 2 - 6 lbs. 2 nd /3 rd Tri = 0.6 lb./wk.	15 - 25 lbs.
Obese BMI => 30	1 st Tri = 1.1 – 4.4 2 nd /3 rd Tri = 0.5 lb./wk.	11 – 20 lbs.

There are **no modifications to the weight gain recommendations.**

- Cascades plots all pregnant participants on prenatal weight gains grid based on their pre-pregnant BMI.
- This includes teens, smokers, or participants of different race or ethnicities. The IOM didn't find enough research and data to support making changes to the standard recommendations for these populations.

Making the weight gain recommendations real:

This table shows the weight gain components for a **normal weight** participant pregnant with **one baby**.

Components	Weight in pounds
Fetus	7.5
Placenta	1
Amniotic fluid	2
Uterus	2.5
Breast tissue	3
Blood volume	4
Maternal stores	4-8
Total:	24 – 28 pounds

Recommendations for pregnant participant having multiples:

Pre-pregnant BMI Category	Recommended total weight gain
Underweight	No guidelines*
Normal	37 – 54
Overweight	31 – 50
Obese	25 - 42

*Underweight participants pregnant with multiples:

- There wasn't enough research and data for the IOM to make specific recommendations for underweight participants pregnant with multiples.
- For all participants pregnant with multiples, Cascades plots their weight on a singleton grid. High weight gain risks won't be assigned when the woman's weight plots above the weight gain recommendations on the singleton grid. It's appropriate for her to gain more weight with multiples.

Number of Fetuses this Pregnancy	Gravida	Para
<input type="text" value="2"/>	<input type="text"/>	<input type="text"/>

Prenatal Grids in Cascades

According to the American Institute of Medicine (IOM):

The types of services needed to meet a pregnant participant’s needs include:

- **Recording** pre-pregnancy height and weight,
- **Charting** the weight gain throughout pregnancy, and
- **Sharing** the results of the progress toward the weight gain goal.

- We use the Health Information screen to record the Pre-Pregnancy Weight and the Expected Delivery Date. Staff can update the due date at any time; the prenatal weight grid will reflect the change.

Note: Staff can change the due date 4 weeks in either direction (earlier or later) and Cascades plots correctly and adjusts the due date correctly.

Quick Links

- New Family
- Family Search
- Certification
 - Family Demographics
 - Participant Demographics
 - Income Information
 - Health Information**
 - Anthro / Lab
 - Family Assessment
 - Dietary & Health
 - Eco-Social Assessment
 - Assigned Risk Factors
 - Certification Signature

TED Family
 Family ID: F15300012199
 369 WALKER SCHOOL RD
 TACOMA, WA 98403

Woman Health Information

Pre-Pregnancy

Measurement Units: Standard
 Pre-Pregnancy Weight: 134 lb. 8 oz.
 Pre-Pregnancy BMI: 28

Cigarettes Per Day

Three Months Prior to Pregnancy: [Dropdown]
 Today: 0

Does anyone smoke inside your house?
 Yes No

Pregnancy

Last Menstrual Period: 11/19/2021
 Expected Delivery Date: 8/26/2022

We use the Anthro/Lab screen to record and chart pregnancy weight gain.

Quick Links

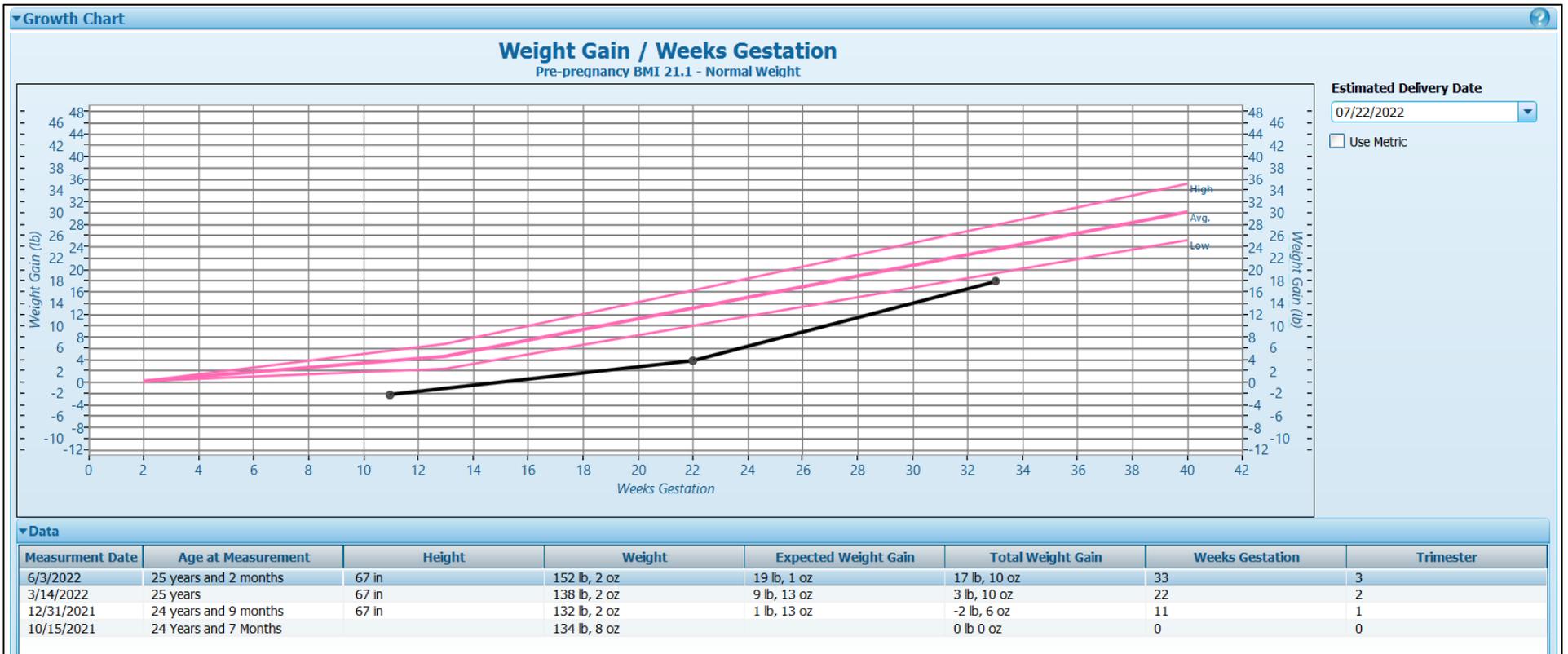
- New Family
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 - Eco-Social Assessment

TED Family
 Family ID: F15300012199
 369 WALKER SCHOOL RD
 TACOMA, WA 98403

Height/Weight

Measurement Date: 6/3/2022
 Height: 67 in.
 Weight: 152 lb. 2 oz.

Measurement Units: Standard
 Weeks of Gestation: 28



Cascades prenatal graphs look like the example above.

- The participant pre-pregnancy BMI shows at the top and determines what grid is used for plotting weight gain.
- The Estimated Delivery Date (EDD) or due date, shows at the top right of the screen.
- The grid measurements have the option to display in Metric by clicking on the box under the EDD.
- Select Data at the bottom left of the graph to see the participant’s Measurement History.

Health Information Screen for PG (Anthropometric related)	
Measurement Units	<ul style="list-style-type: none"> • Standard • Metric
Pre-pregnancy weight	<ul style="list-style-type: none"> • <u>A pre-pregnant weight must be entered.</u> <p>How would you get the best estimate of pre-pregnant weight?</p>
Pre-Pregnancy BMI	<ul style="list-style-type: none"> • Cascades calculates BMI from the pre-pregnant weight and height. (Once both height and weight are entered the BMI calculation is determined) • Determines the woman’s weight gain grid and recommended range of weight gain (based on BMI).
Last Menstrual Period	<ul style="list-style-type: none"> • Is used to calculate the Expected Delivery Date
Expected Delivery Date (EDD)	<ul style="list-style-type: none"> • Enter EDD reported by participant or use the Last Menstrual Period to calculate the EDD. • If the due date is the current day, it will display “40” on the Anthro/Lab screen. Cascades won’t allow an EDD from the past.
Number of Fetuses this Pregnancy	<ul style="list-style-type: none"> • Number of unborn babies
Gravida	<ul style="list-style-type: none"> • Number of times that the pregnant adult has been pregnant. Example: first pregnancy is a gravida I or primigravida.
Para (parity)	<ul style="list-style-type: none"> • Number of times the pregnant adult has given birth after 20 weeks.
Health Information Screen for BF and Non-BF (Anthropometric related)	
Delivery Date	Enter date of the infant’s birth
Weight at Delivery	Enter the infant’s birth weight
Number of Fetuses this Pregnancy	Enter the number of fetuses for the pregnancy
Gravida	Number of times that the adult has been pregnant. Example: first pregnancy is a gravida I or primigravida.
Para	Number of times the adult has given birth after 20 weeks.
Outcome	Enter the outcome of the fetus (each) <ul style="list-style-type: none"> • Live Term Birth • Fetal Death • Miscarriage • Neonatal Death

Delivery Type	<ul style="list-style-type: none"> • Cesarean • Vaginal Birth
Weeks Gestation	How many weeks gestation was the infant when it was born?
Birth Length	Length determined at birth
Birth Weight	Weight determined at birth

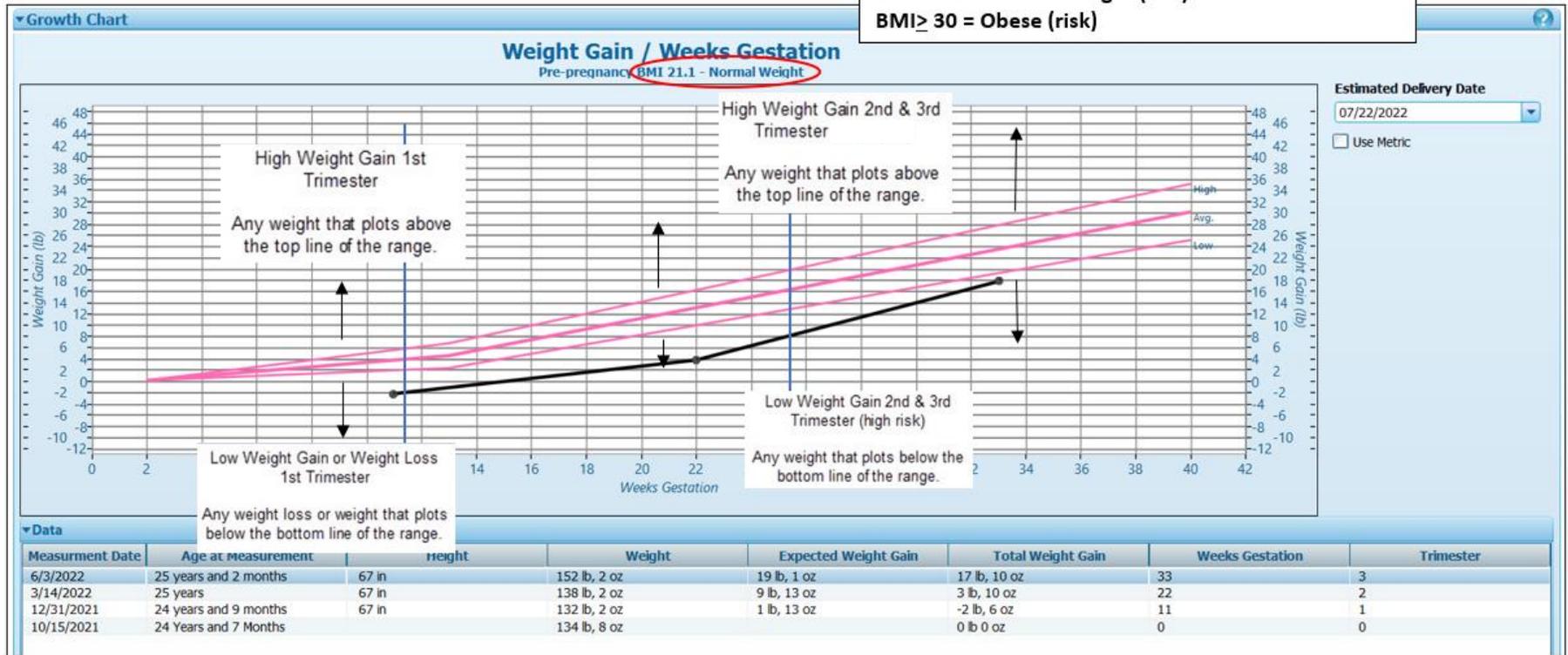
Anthro/Lab Screen	
Height/Weight	
Measurement Date	<ul style="list-style-type: none"> • Defaults to today's date. • Change the date to reflect when a measurement was taken at another location so the measurement will plot correctly for the correct trimester.
Height	<ul style="list-style-type: none"> • Enter in inches (5 feet = 60 inches) and eights of an inch. • <u>Height must be entered each time a weight is entered.</u> For adult participants, staff re-enter the previous height from the initial certification.
Weight	<ul style="list-style-type: none"> • Entered in pounds and ounces (1 pound = 16 ounces)
Collected By	Staff person or use the Source of Measures dropdown
Source of Measures	<ul style="list-style-type: none"> • Put cursor in "Collected By field, highlight existing name, and select delete. This allows the Source of Measures dropdown to be accessible: <ul style="list-style-type: none"> • WIC Clinic • Healthcare provider • Hospital
Measurement Units	<ul style="list-style-type: none"> • Standard • Metric
Weeks Gestation (PG only)	Is auto calculated using EDD (entered on previous screen)
Measurement Type	Available for the child between 2-3 years of age when you're unable to get a standing height measurement <ul style="list-style-type: none"> • Recumbent • Standing
Gestational Age (Infant & Child only)	Determined gestational age when born

Bloodwork	
Bloodwork Date	<ul style="list-style-type: none"> • Defaults to today's date. • Change the date to reflect when a blood value was taken at a doctor's office so the blood value is compared to the correct trimester value and child's age.
Hgb OR Hct	<ul style="list-style-type: none"> • Hemoglobin (Hgb) values are typically used in WIC. • If you don't get the value in the clinic you will need to get it from the medical provider and enter the value and the date taken. <p>How does your clinic make sure the bloodwork values from the doctor are brought in and entered in Cascades?</p>
Collected By	Staff person or use the Source of Measures dropdown
Source of Measures	<ul style="list-style-type: none"> • Put curser in "Collected By field, highlight existing name, and select delete. This allows the Source of Measures dropdown to be accessible: <ul style="list-style-type: none"> • WIC Clinic • Healthcare provider • Hospital
Exempt Reason	<p>See Volume 1, Chapter 10 - Hematology Staff must grant exceptions to hematology testing for the following reasons:</p> <ul style="list-style-type: none"> • Medical Condition (such as hemophilia or serious skin disease; participant can self-report the condition) • Religious Belief • Not required by policy • Refusal
Deferred Reason	<ul style="list-style-type: none"> • Will get from medical provider • Illness • Couldn't get a value • Participant not present • Equipment failure
Sticky Note	<ul style="list-style-type: none"> • Used to document special information like "taken at doctor's office" or "had cast on left leg." <p>Does your clinic use a specific list of abbreviations for this field?</p>
Scan Document	<ul style="list-style-type: none"> • User scanner to add document into Cascades
View Documents	<ul style="list-style-type: none"> • View the scanned documents
Prenatal Grids (Prenatal only)	<ul style="list-style-type: none"> • View the correct weight gain grid for the participant with Pre-pregnancy BMI chart

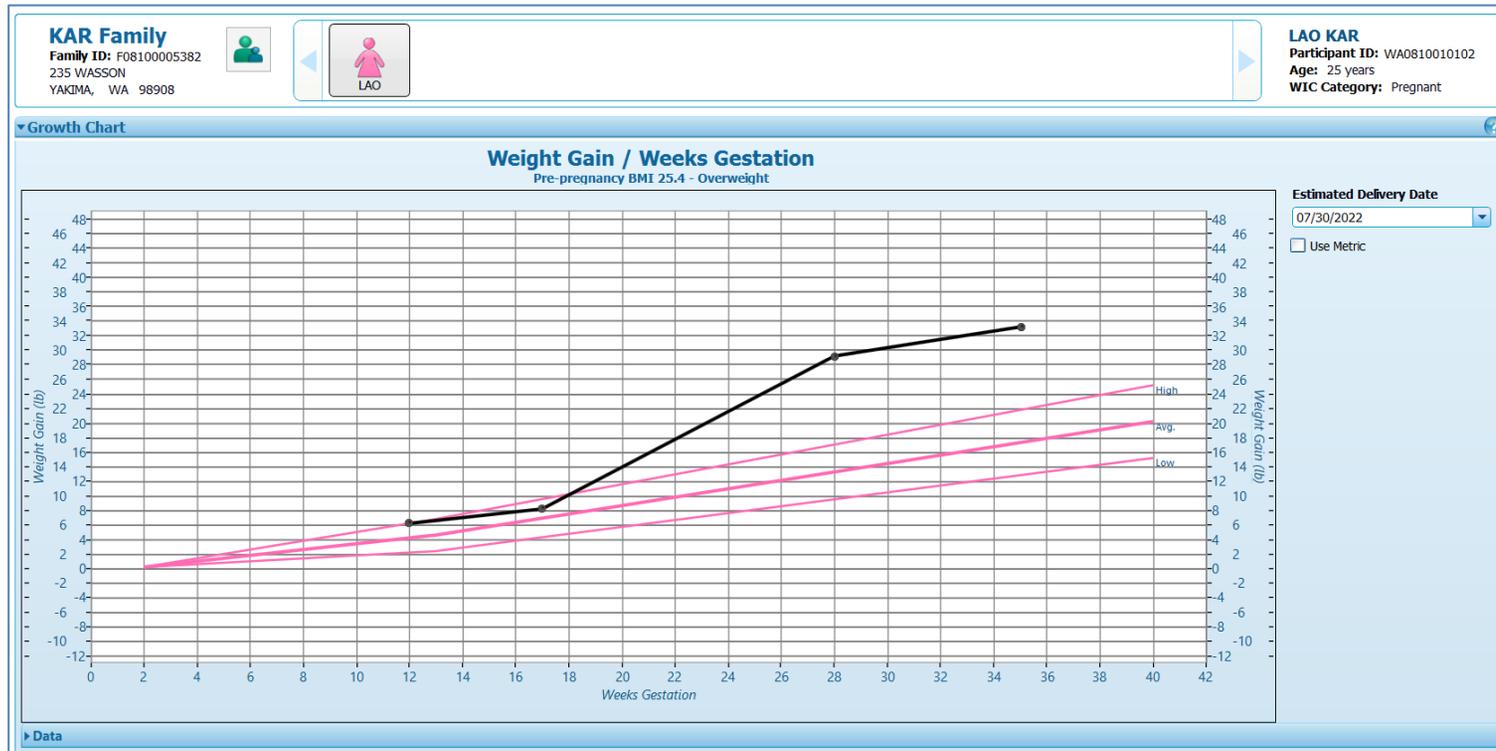
SAVE	<ul style="list-style-type: none">• Save - information entered on the screen saves and will calculate risks based on entry(ies).
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Cascades Prenatal Weight Gain Grid

The title lists the Pre pregnancy BMI range
BMI 18.5-24.9 = Normal
BMI <18.5 = Underweight (risk)
BMI 25-29.9 = Overweight (risk)
BMI ≥ 30 = Obese (risk)



Conversation with Lao



Height/Weight

Measurement Date	Age at Measurement	Height	Weight	Expected Weight Gain	Total Weight Gain	Weeks Gestation	Trimester	Total Items: 4	
✗ 6/20/2022	24 years and 10 months	60 in	163 lb, 0 oz	12 lb, 10 oz	33 lb, 0 oz	35	3		
✗ 5/6/2022	24 years and 9 months	60 in	159 lb, 0 oz	9 lb, 5 oz	29 lb, 0 oz	28	2		
✗ 2/14/2022	24 years and 6 months	60 in	138 lb, 0 oz	4 lb, 2 oz	8 lb, 0 oz	17	2		
✗ 1/11/2022	24 years and 5 months	60 in	136 lb, 0 oz	2 lb, 0 oz	6 lb, 0 oz	12	1		

▶ Selected Row Details

You can print the woman’s grid from Cascades.
 You can print blank copies of the Singleton and Multiples Grids from the [WIC website](#):

The Prenatal Weight Gain Grid Conversation for Lao Kar

The IOM stated it's important to meet the pregnant participant's needs by charting the weight gain throughout pregnancy and **sharing the results so there's awareness of the weight gain recommendation and progress toward this goal.**

Here are two versions of the prenatal weight gain conversation. Read these two versions and think about which one would meet the participant's needs better.

A recent study showed that only 42% of health care providers share the prenatal weight gain recommendations with pregnant women¹.

“Just the facts”

Let's take a look at your weight gain for the pregnancy Lao. You have about a month to go before the baby's born and you've gained 33 pounds. Let's schedule your next appointment.

“Participant centered”

Let's take a look at your weight gain for the pregnancy Lao. You have about a month to go before the baby's born and have gained 33 pounds. The recommended weight gain for you is between 22 and 37 pounds for the pregnancy.

How do you feel about your weight gain so far? (pause and listen)

To stay closer to the recommended range you would gain about 1 pound a week from now until you have the baby. What are your thoughts about that? What questions or concerns do you have? (Listen, ask questions as appropriate).

Let's schedule your next appointment.

Activity:

1. **Locate** a pregnant participant in the Sandbox.
2. **Review** the prenatal grids. *(due to the pandemic, not may not be many measurements available)*
3. How could you **share the information** from the prenatal weight grid and **make the conversation “participant-centered”**?
4. Practice with a co-worker if possible, taking turns as the WIC staff person and the participant.

Tools for the prenatal weight gain conversation.

1. [Healthy Weight Gain During Pregnancy](#) (Participant nutrition education material).
2. [Health Weight Gain During Pregnancy: A Clinician's Tool](#).

Breastfeeding and Non-Breastfeeding Participants

WIC weighs breastfeeding and non-breastfeeding participants and assesses weight status.

Measurement Policies:

Policy:	Information:
1. Staff must weigh and measure breastfeeding (BF) and non-breastfeeding (Non-BF) participants at each certification appointment.	These appointments include: <ul style="list-style-type: none"> • Initial certification (IC) • Subsequent certification (SC)
2. You must weigh breastfeeding participants at the mid-certification appointment.	<ul style="list-style-type: none"> • Enter the participant’s weight on Anthro/Lab screen • Have a conversation about the participant’s weight status.
3. Use the same standing equipment and policies as pregnant participants.	<ul style="list-style-type: none"> • No shoes or heavy outer clothing for participant • Standing height and weight of participant

The goals of weighing chest/breastfeeding and non-breastfeeding participants and having a conversation about weight status are to help participants:

- Get to their **recommended weight** after the pregnancy.
- Have **healthier future pregnancies**.
- Have **lower risks for chronic health conditions** later in life.

A study found that weight gain between the first pre-pregnancy BMI status and the second pre-pregnancy BMI value is associated with an increased risk of:

- Gestational diabetes
- Pregnancy-induced hypertension
- C-section
- Macrosomia

Bogaerts, et al, “Interpregnancy Weight Change and Risk for Adverse Perinatal Outcome, *American College of Obstetrics and Gynecologists*, November 2013.

When assessing BF and non-breastfeeding participants risks for overweight or underweight Cascades uses:

Before 6 months postpartum (BF/Non-BF)

- Use pre-pregnant status for overweight or obese
- Use pre-pregnant or current status for underweight

After 6 months postpartum (BF only)

- Use current status for overweight or underweight

High Weight Gain (This PG) (BF and Non-BF) - This risk relates to the most recent pregnancy only.

- Enter the weight into the Weight at Delivery field on the Health Information screen.
- Cascades will calculate this risk.
- This risk doesn't apply to participants pregnant with multiples. If Cascades auto-assigns this risk for a participant pregnant with multiples, remove the risk on the Assigned Risk Factors screen.

Factors Affecting Growth and Development for Infants and Children

- Growth can be an indicator of nutrition and health status.
- It can also be affected by many other factors. Some of these factors are listed below.

	<p>Race and ethnicity</p> <p>Race and ethnicity may play a part in a child's growth pattern.</p> <p>WIC uses the standard growth charts to follow the <u>rate</u> of growth and changes in the <u>pattern</u> of growth.</p>
	<p>Parent's stature or genetics:</p> <p>Parent height can give important information about the child's genetic potential.</p> <p>It's important to look at the child's weight for height and pattern of growth.</p>
	<p>Hormone Levels:</p> <p>Some children have hormonal imbalances which affect the growth pattern.</p> <p>Some diseases, medical treatments or medications can affect hormone levels.</p>
	<p>Behavioral and Environmental effects:</p> <p>Some children with pervasive development disorders (PDD) such as autism may have poor growth due to extreme food-related behaviors.</p> <p>Environment and mealtime patterns can affect nutrition and growth.</p>
	<p>Feeding Methods:</p> <p>Babies who are breastfed <u>grow differently</u> than formula fed babies.</p> <p>The Center for Disease Control (CDC)/World Health Organization (WHO) growth charts WIC uses are based breastfed babies.</p>
	<p>Maturity Level:</p> <p>Premature infants and children tend to plot at the lower percentages of the growth charts.</p> <p>It's important to assess the premature infant/child's rate of growth based on their adjusted age.</p>

Assessing the Growth of Infants and Children

WIC weighs and measures infants and children to assess growth and development.

Measurement Policies:

Policy:	Information:
1. Staff must weigh and measure infants and children at each certification, subsequent certification and mid-certification health assessment. (Waiver in place)	These appointments include: <ul style="list-style-type: none"> • Initial certification (IC) • Subsequent certification (SC) • Mid-certification health assessment <ul style="list-style-type: none"> ○ HA for infants
2. Measurements can come from the medical provider.	<ul style="list-style-type: none"> • Enter the measurements and change the Measurement Date to the date taken. • Delete the Collected By and select the Source of Measures as the Health care provider
3. Measurements must be taken within the past 60 days to assess the person's current status.	More current measurements are recommended especially to assess growth.
4. Infants and children birth to 24 months of age: <ul style="list-style-type: none"> • Take recumbent measurements • Take off heavy outer clothing and wet diapers* • Remove hats, hair barrettes, braids or pony tails on top or back of head 	Length – recumbent board Lying or sitting weight – infant scale
5. Children 2 – 5 years of age <ul style="list-style-type: none"> • Take standing measurements • Take off shoes and heavy outer clothing* • Remove hats, hair barrettes, braids or pony tails on top or back of head 	Standing height – stadiometer Standing weight – adult scale <ul style="list-style-type: none"> • If you can't get a height between 2 and 3 years of age: <ul style="list-style-type: none"> ○ Measure child on recumbent board ○ Select the Measurement Type of Recumbent on the Anthro/Lab screen. ○ Enter the length into the Height field. • Between 24 and 36 months: <ul style="list-style-type: none"> ○ Cascades will assign Underweight based on the recumbent length. ○ Cascades <i>won't</i> assign Overweight or at Risk of Overweight risks based on the recumbent length.

***Note:** You can weigh an infant or child without clothes when you're concerned about growth. Make a note in the file when you weigh without clothing.

The measurements you enter in Cascades are used to:

- Plot on standard growth charts
- Auto-calculate growth related risks
- Open a conversation about growth with the caregiver

Growth Charts in Cascades

Washington WIC uses these growth charts:

Birth – 24 months:

Center for Disease Control (CDC) – World Health Organization (WHO) Growth Charts (2006)

- These charts are based on growth data from six countries around the world.
- Measured healthy children under ideal conditions – access to health care, no smoking, adequate socioeconomic status to support growth, full term birth and breastfeeding.
- Breastfed infants and children are the standard.
- The CDC-WHO charts are a **growth standard**. They describe how children should grow under optimal conditions regardless of time, place or ethnicity.

Children 2 – 5 years: of age:

CDC Growth Charts for Children 2 – 20 Years (2000)

- Growth charts used in doctor's offices
- Gives continuity through childhood
- Uses standing height from age 2

WIC plots actual age and adjusted age for premature infants and children:

- Cascades will plot actual age from date of birth and adjusted age on the growth charts until 24 months of age.
- We use the adjusted age plot to assign risks, and assess growth, feeding skills and development.

How does WIC define “prematurity”?

Full Term: A full term pregnancy is 40 weeks.

Preterm (Premature): Delivery of infant born $\leq 36 \frac{6}{7}$ weeks gestation.

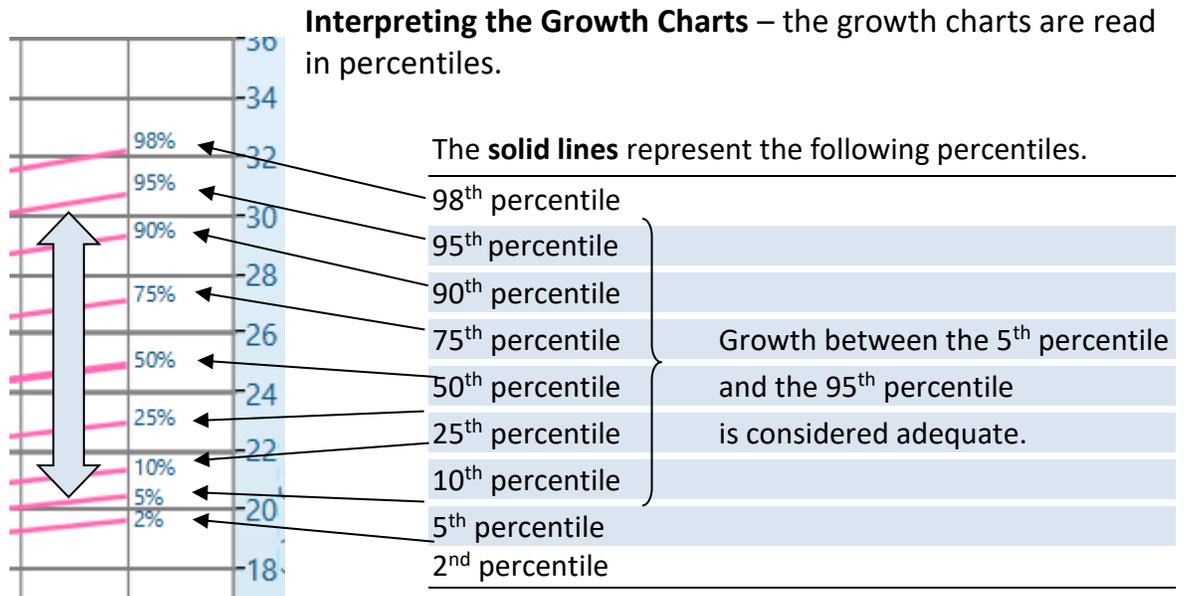
Early Term: Delivery of an infant born $\geq 37 \frac{0}{7}$ and $\leq 38 \frac{6}{7}$ weeks gestation.

Age (or Actual Age): The age of the infant or child based on the actual day of birth.

The Actual age plots in color on the graph.

Adjusted Age: The age of the infant or child if he/she had been born on the due date. The number of weeks premature is subtracted from the age.

The Adjusted age plots in black on the graph.

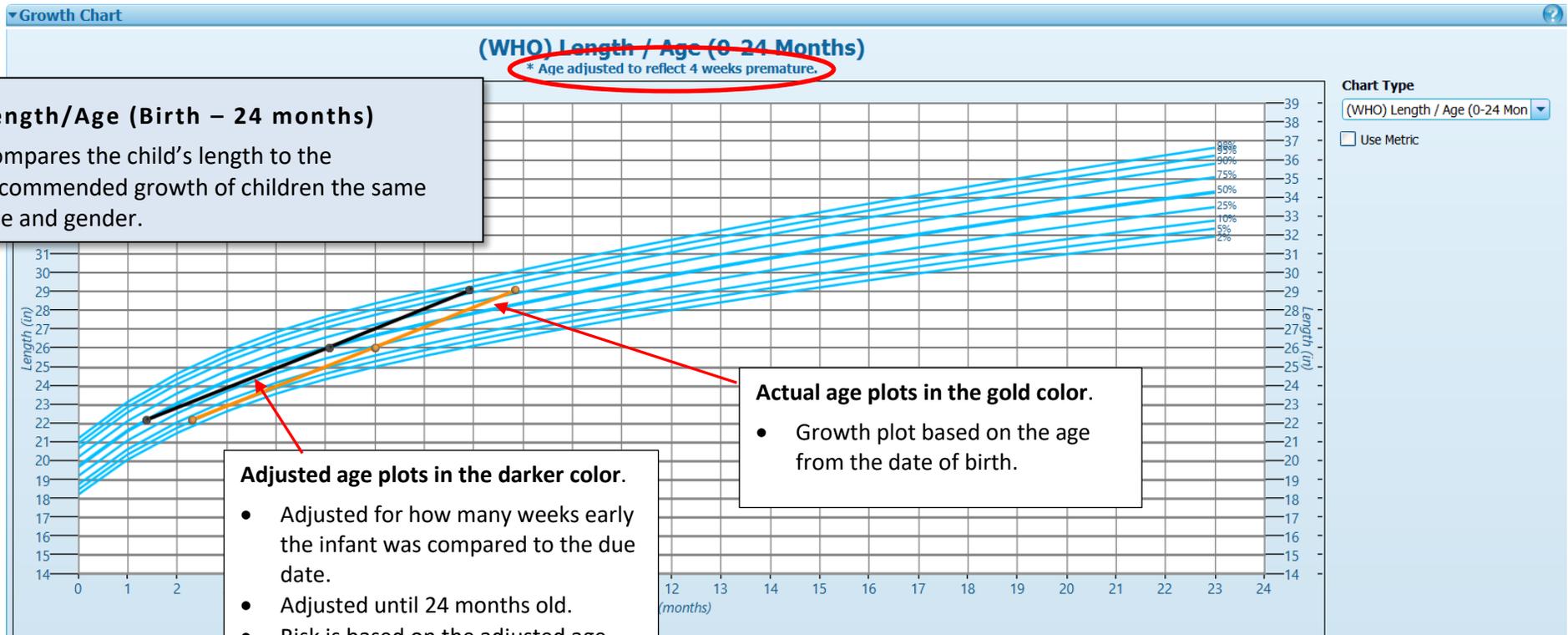


The **spaces** between the solid lines **are called channels**.

The rate of growth of each child is most important, comparing this child’s past measurements and set pattern of growth to the current plot and growth pattern.

Changes in the pattern of growth, or changes across channels are the areas of concern.

Interpreting Child’s Growth Chart



Length/Age (Birth – 24 months)
 Compares the child’s length to the recommended growth of children the same age and gender.

Adjusted age plots in the darker color.

- Adjusted for how many weeks early the infant was compared to the due date.
- Adjusted until 24 months old.
- Risk is based on the adjusted age plot.

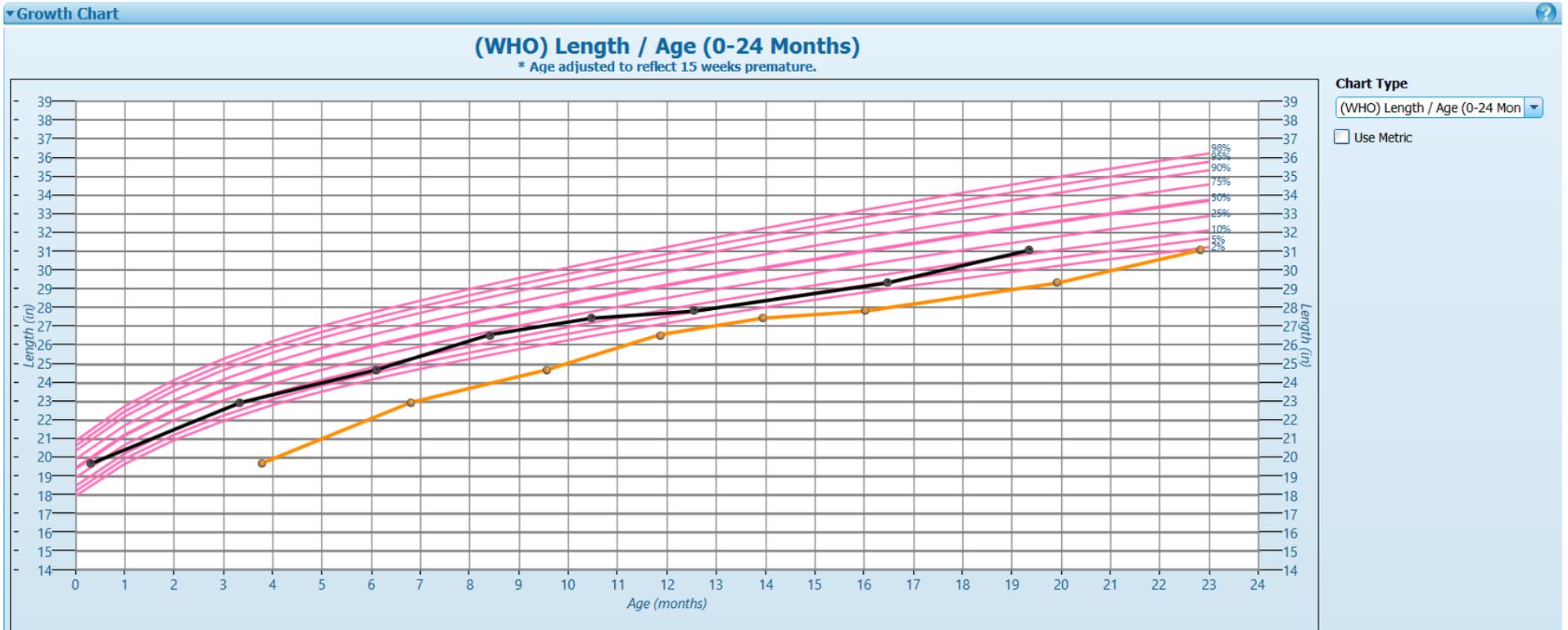
Actual age plots in the gold color.

- Growth plot based on the age from the date of birth.

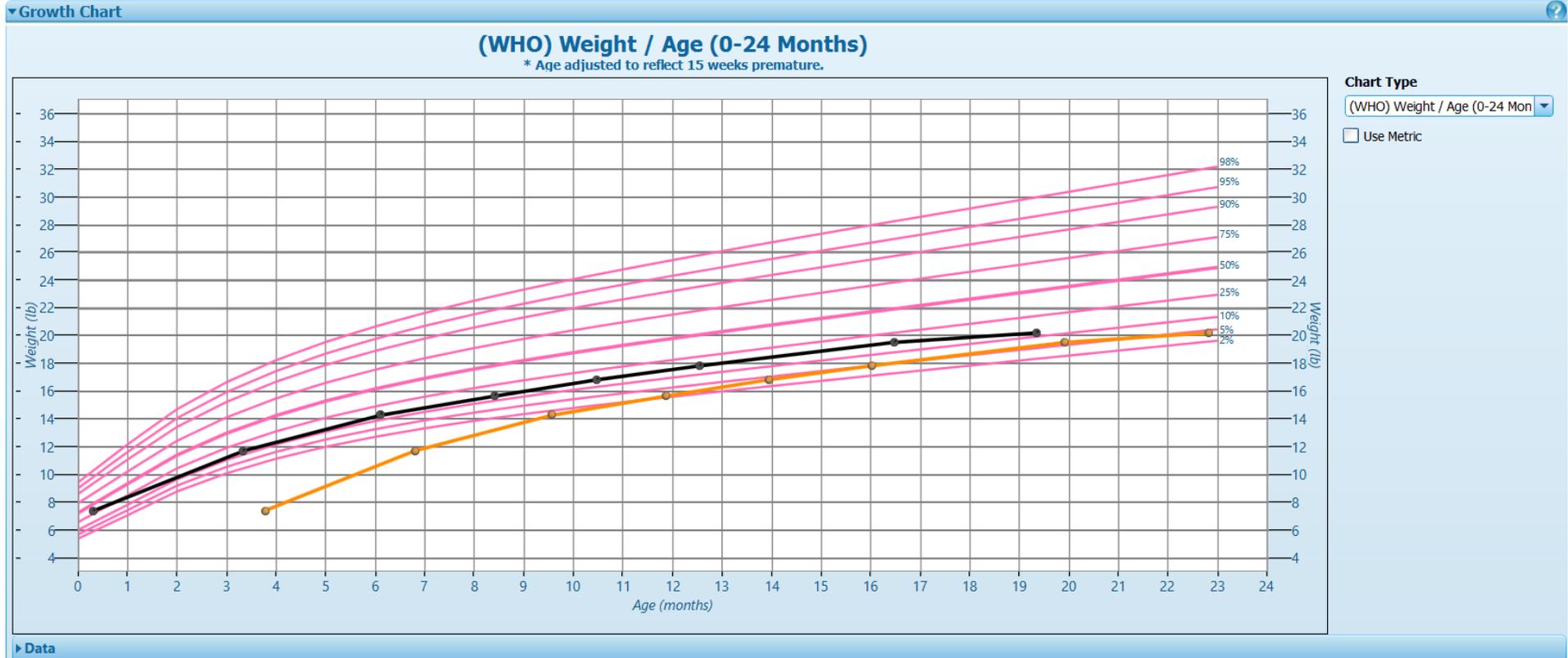
Length/Age risks for infants and children < 24 months:

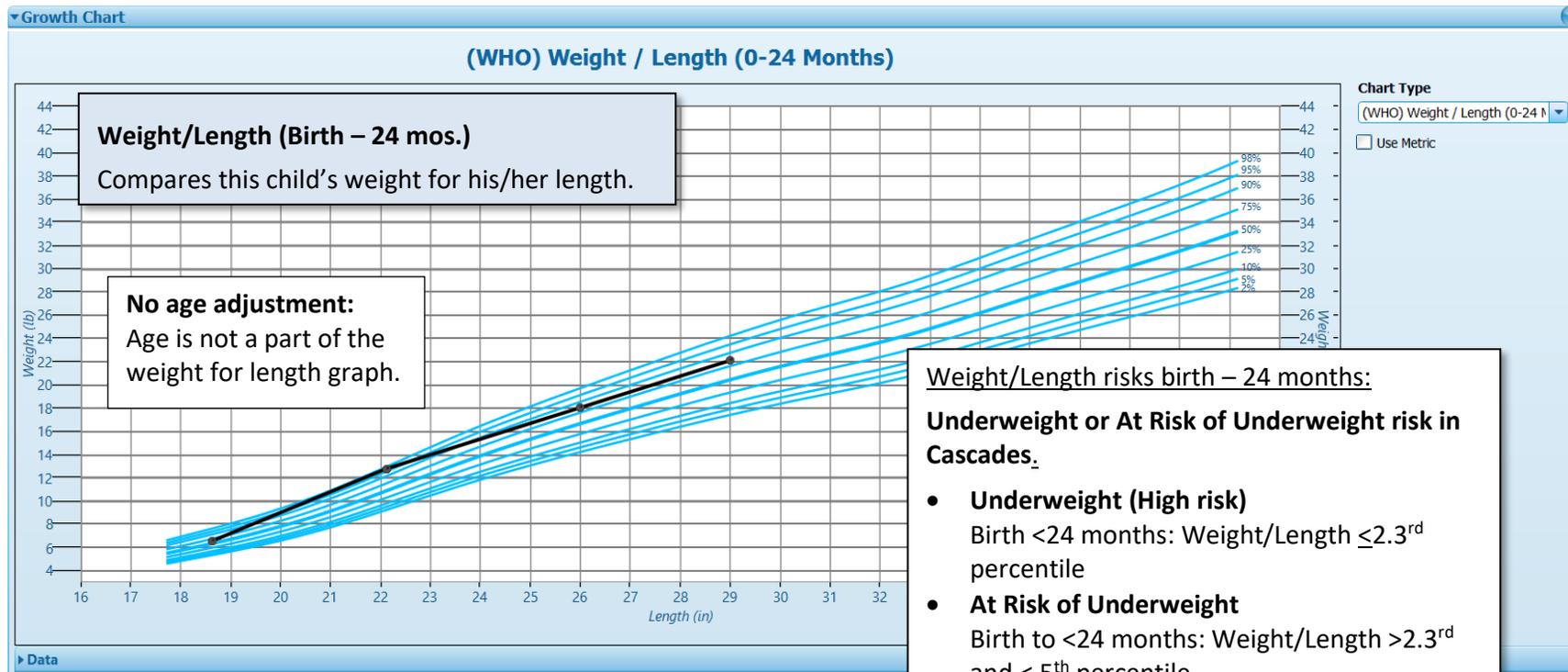
Short Stature or At Risk of Short Stature

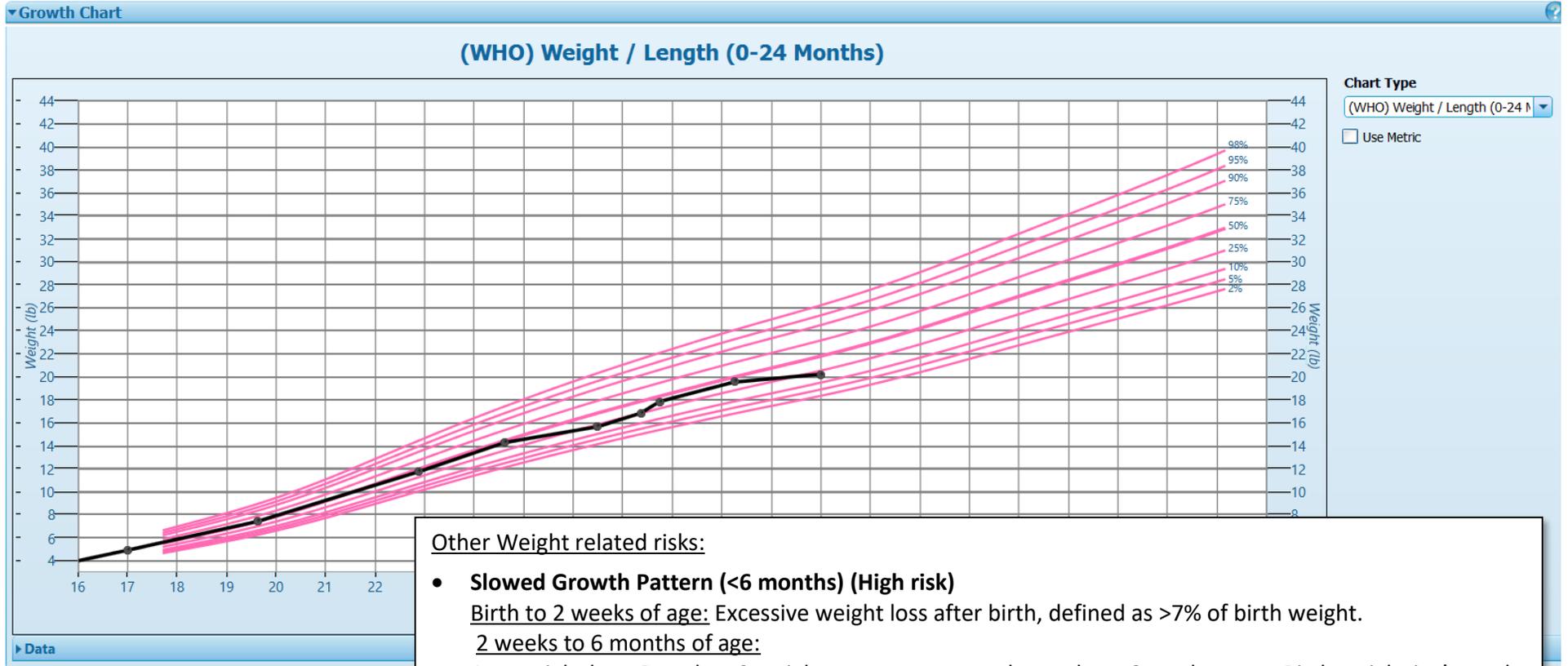
- **Short Stature**
 Birth to <24 months: Length/Age \leq 2.3rd percentile
- **At Risk of Short Stature**
 Birth to <24 months: Length/Age $>$ 2.3rd and \leq 5th Percentile



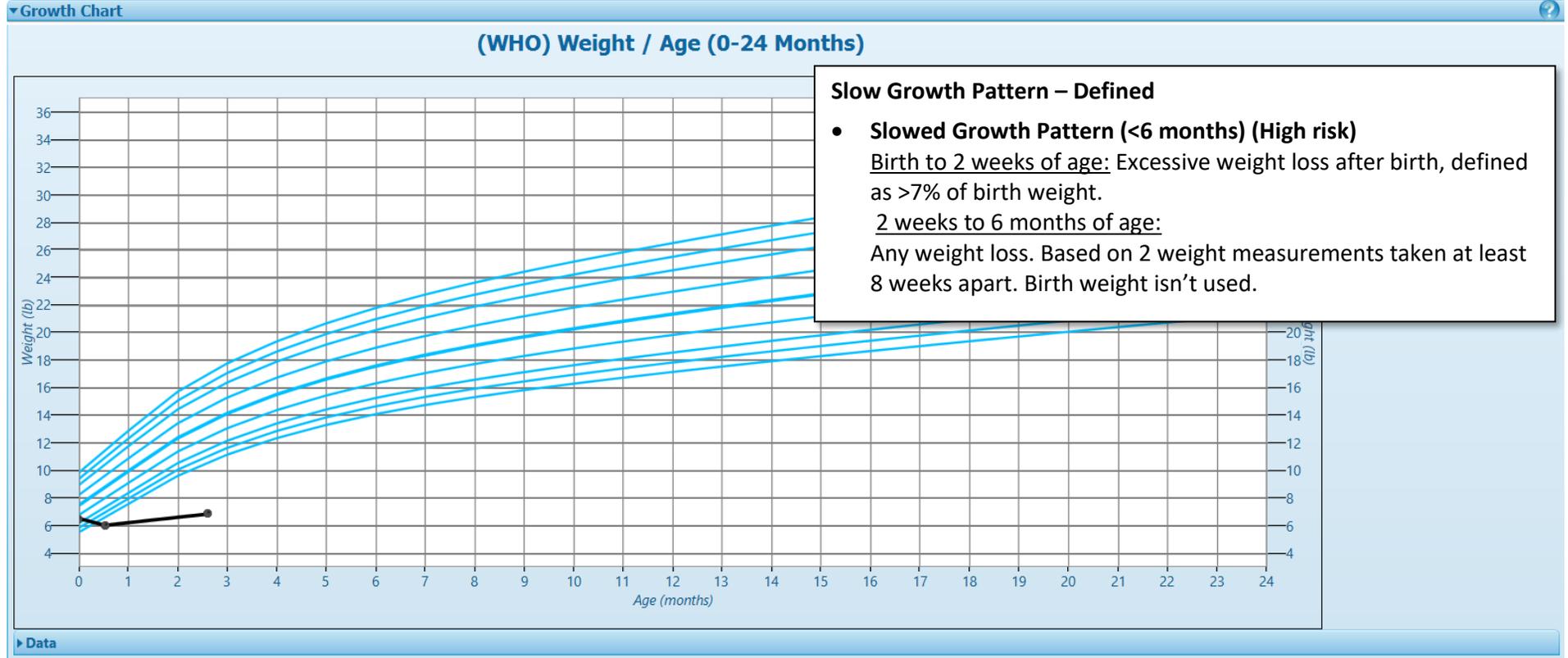








- Other Weight related risks:**
- **Slowed Growth Pattern (<6 months) (High risk)**
Birth to 2 weeks of age: Excessive weight loss after birth, defined as >7% of birth weight.
2 weeks to 6 months of age:
 Any weight loss. Based on 2 weight measurements taken at least 8 weeks apart. Birth weight isn't used.
 - **Small for Gestational Age**
 Diagnosed by doctor as self-reported by applicant/participant, or as reported or documented by a physician, or someone working under physician's orders.
 - **Large for Gestational Age**
 Diagnosed by a physician as self-reported by caregiver; or as reported or documented by physician, or someone working under a physician's orders.

Example of **Slowed Growth Pattern****Joshua – Anthro/Lab screen (next page)**

- **Joshua** is weighed and measured.
- The certifier enters his measurements and reviews the growth charts with the caregiver.
- Review the growth charts on the next page and think about how you would share the information with the caregiver.

CRAGNESS Family

Family ID: F15300012200
 345 LINCOLN ST.
 OLYMPIA, WA 98502



JOSHUA CRAGNESS

Participant ID: WA1530022983
 Age: 8 months
 WIC Category: Infant

Growth Chart

(WHO) Weight / Age (0-24 Months)

* Age adjusted to reflect 4 weeks premature.

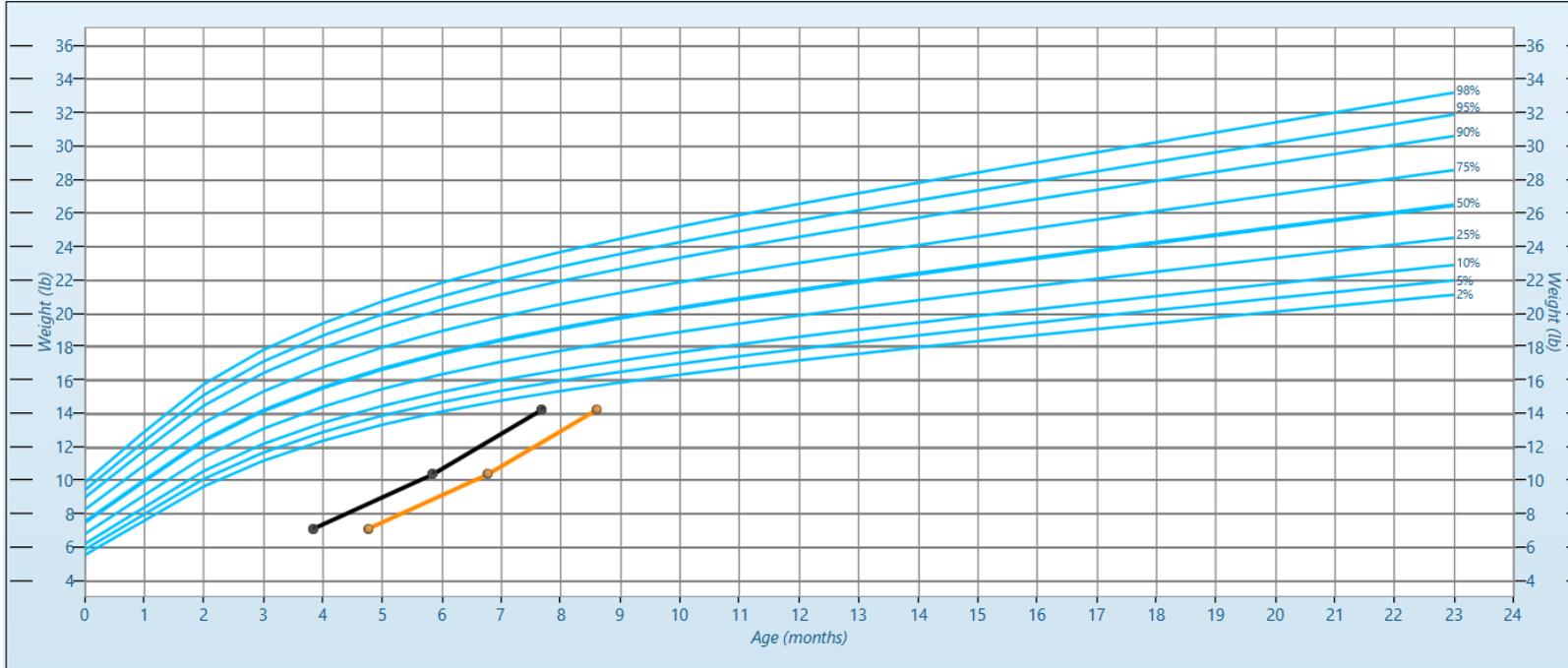


Chart Type

(WHO) Weight / Age (0-24 Mon)

Use Metric

Data

Measurement Date	Height	Weight	Expected Weight (Actual Weight Gain	BMI	Age at Measureme	% Ht/Age	% Wt/Age	% Wt/Lt	% BMI/Age	% HC/Age
6/13/2022	22 6/8 in (R)	14 lb, 2 oz	1 lb, 2 oz	3 lb, 14 oz	N/A	8 months	0.0% (A)	0.5% (A)	98.0%	N/A	N/A
4/18/2022	20 in (R)	10 lb, 4 oz	1 lb, 7 oz	3 lb, 4 oz	N/A	6 months	0.0% (A)	0.0% (A)	99.9%	N/A	N/A
2/16/2022	19 in (R)	7 lb, 0 oz	5 lb, 14 oz	1 lb, 11 oz	N/A	4 months	0.0% (A)	0.0% (A)	74.0%	N/A	N/A
9/24/2021	17 3/8 in (R)	5 lb, 5 oz			N/A	0 days	N/A	N/A	0%	N/A	N/A

Child Growth Charts in Cascades

Anthro/Lab Screen

- The Measurement Type is only available to change during the 2 to 3-years of age.
- A length is labeled as Height, even when Recumbent is selected as the Measurement Type.
- Length related risks aren't allowed after 24 months of age.

For example: Cascades won't assign the risk of Overweight or At Risk of Overweight based on a recumbent measurement.

This risk only applies to children with a BMI value which calculates from standing measurements.

- Cascades calculates BMI when you select Standing as the Measurement Type
- Percent Weight for Length applies when Recumbent is selected as the Measurement Type
- Between 24 and 36 months; just the underweight related risks will assign based on the recumbent length.

The screenshot shows the 'Height/Weight' section of the Cascades software. It includes a 'Measurement Date' field with a calendar icon, a 'Height' field with a dropdown menu set to 'in.', and a 'Measurement Units' section with a 'Standard' icon. The 'Measurement Type' section has two radio buttons: 'Recumbent' and 'Standing', with 'Standing' selected. A blue circle highlights the 'Measurement Type' section.

Risks for >12-month-old to <24-month old child

Small for Gestational age (<24 months)

Presence of condition diagnosed, documented, or reported by a physician or someone working under a physician's orders, or as self reported by applicant/participant/caregiver.

Weight/Length \geq 98th Percentile (<24 months) (High risk)

Underweight or At Risk of Underweight

- **Underweight**
 - \leq 2.3rd percentile weight/length (**High risk**)
- **At Risk of Underweight**
 - $>$ 2.3rd percentile and \leq 5th percentile weight/length

Arry Corbin's Anthro/Lab Screen
Height/Weight History

EMESH Family
Family ID: LF13816178
105 Main Street
VANCOUVER, WA 98685



ARRY CORBIN
Participant ID: LWA1403974
Age: 3 years and 9 months
WIC Category: Child

Height/Weight

	Measurement Dat	Height	Weight	Expected Weight	Actual Weight Gai	Age at Measur em	BMI	% Ht/Age	% Wt/Age	% Wt/Lt	% BMI/Age	
Height/Weight History	12/13/2021	39 (S) in	38 lb, 2 oz	8 lb, 1 oz	18 lb, 2 oz	3 years, 3 months	17.6	70.9%	90.6%	N/A	90.5%	
	3/14/2019	27 3/8 (R) in	20 lb, 0 oz	5 lb, 8 oz	9 lb, 5 oz	6 months	N/A	81.8%	89.3%	85.1%	N/A	
	10/16/2018	22 4/8 (R) in	10 lb, 11 oz	1 lb, 6 oz	1 lb, 1 oz	1 month	N/A	86.1%	67.6%	22.1%	N/A	
	9/13/2018	22 (R) in	9 lb, 10 oz			0 days	N/A	99.9%	97.2%	13.0%	N/A	

Interpreting the Child Growth Charts

WIC uses the BMI-for-age growth chart to assess the growth and body proportion of children over the age of two once a height is taken. This is the same tool the medical community uses.

Advantages of BMI-for-Age:

- ✓ BMI-for-age shows **age-related changes** in body fatness through growth periods.
- ✓ BMI-for-age goes all the way from **age 2 to age 20**. However, Cascades shows the range of 2-5 years.
- ✓ BMI-for-age **correlates with body fatness**.

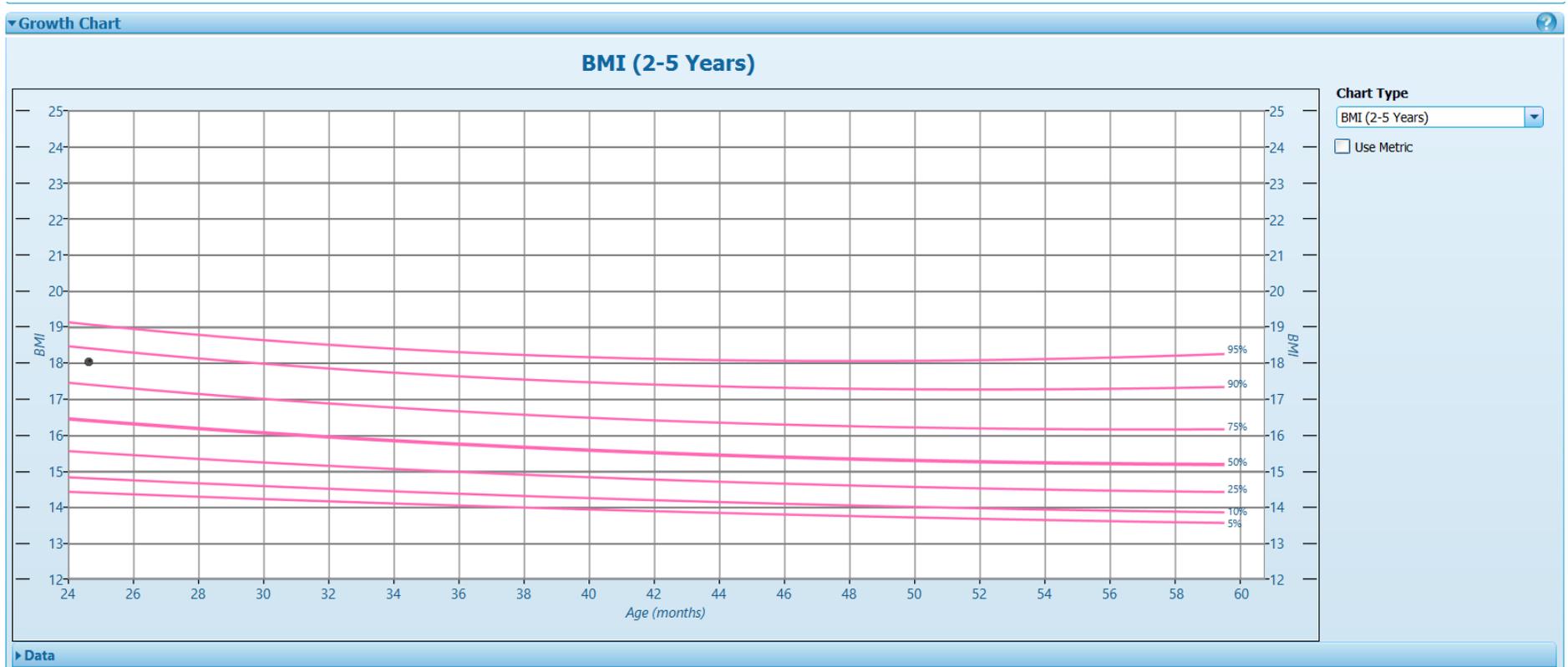
Disadvantages of BMI-for-Age:

- ✓ BMI-for-age is based on **less data for assessing underweight** than overweight.

Children may show high percentiles if they have:

- ✓ Highly muscular body type
- ✓ Large head size
- ✓ High torso to leg ratio

Area outlined from previous page, enlarged section from the Body Mass Index Chart for Girls (2 – 5 years)



BMI-for-Age

BMI begins to decline around 2 years of age and continues to decline until the child reaches 4 – 6 years of age, then it begins to increase again. The point at which the BMI starts to increase again is referred to as the BMI rebound, also called “adiposity” rebound.

Recent research has shown that:

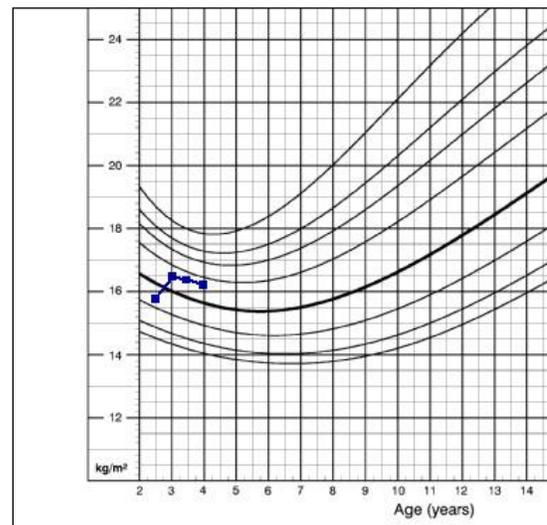
- ✓ The age of the BMI rebound may predict obesity later in life.
- ✓ If a child’s BMI increases significantly before the age of 4 – 5 years, this is called “early BMI rebound” and is significantly correlated with obesity in adolescence and adulthood.

Adiposity:

The amount of fat in the body. Can be listed as total fat (in pounds) or a percentage of total body weight.

Adiposity Rebound:

The point when BMI starts to increase is called the adiposity or BMI rebound.



Child growth-related risks for children 2 – 5 years.

Height for age:

Short Stature or At Risk of Short Stature

- Short Stature $\leq 5^{\text{th}}$ percentile
- At Risk of Short Stature $>5^{\text{th}}$ percentile and $\leq 10^{\text{th}}$ percentile

Weight for age:

Underweight or At Risk of Underweight

- Underweight $\leq 5^{\text{th}}$ percentile BMI for age (**High risk**)
- At Risk of Underweight $> 5^{\text{th}}$ percentile and $\leq 10^{\text{th}}$ percentile BMI for age

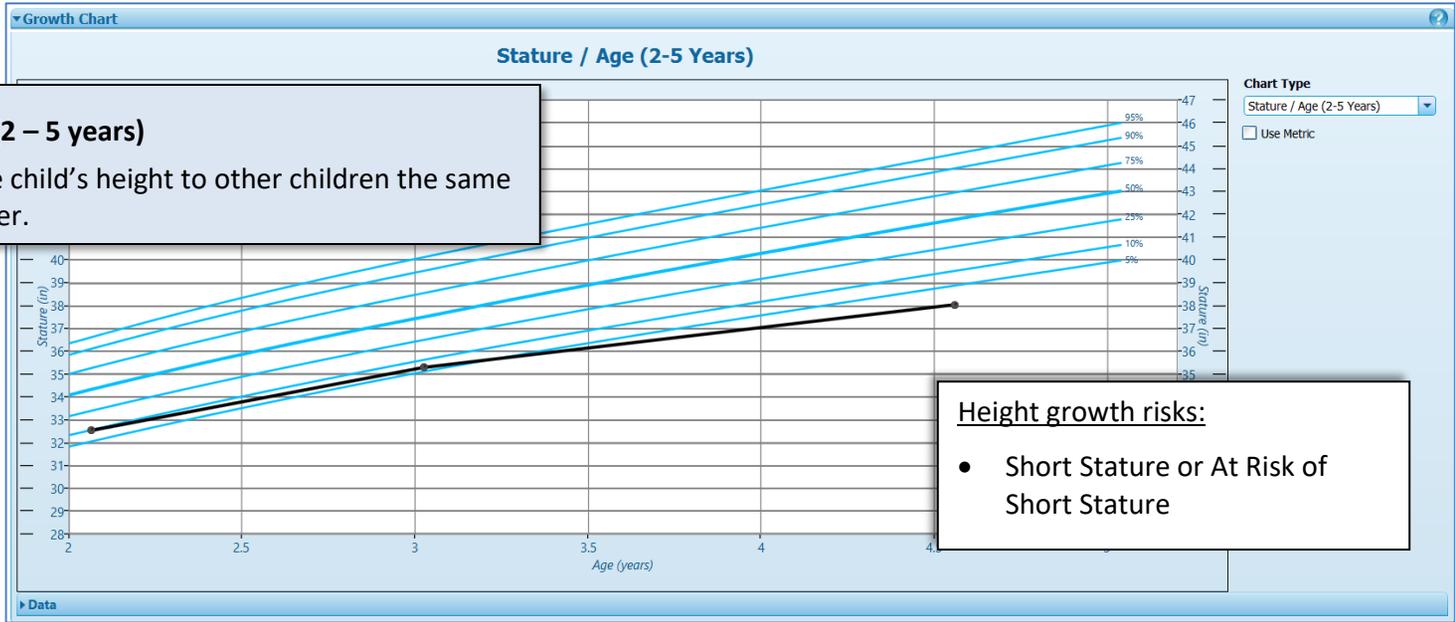
BMI for age:

BMI $\geq 95^{\text{th}}$ -ile (**High risk**)

Overweight or At Risk of Overweight

- Overweight BMI $>85^{\text{th}}$ and $<95^{\text{th}}$ percentile
- At Risk of Overweight Biological mother or father with BMI ≥ 30 at time of certification.

Stature/Age (2 – 5 years)
 Compares the child's height to other children the same age and gender.



Height growth risks:

- Short Stature or At Risk of Short Stature

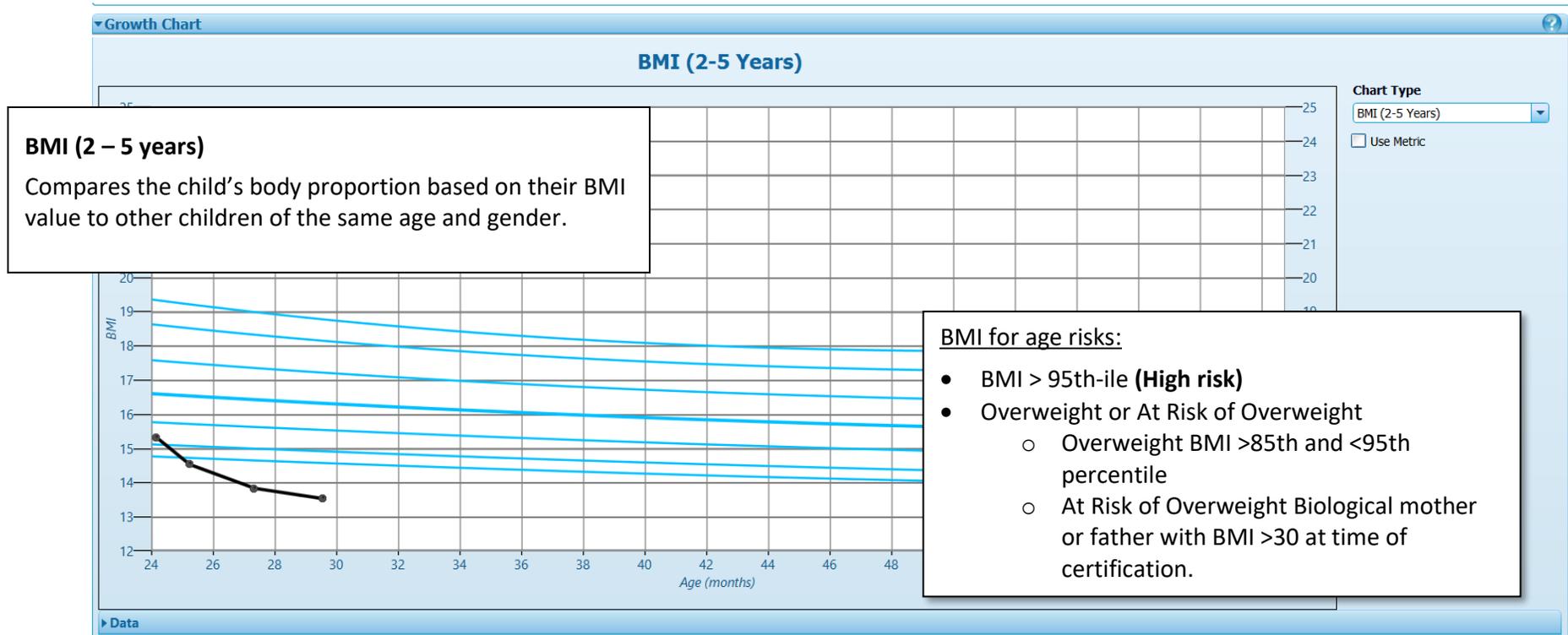
Weight/Age (2 – 5 years)
 Compares the child's weight to other children the same age and gender.



Weight growth risks:

- Underweight or At Risk of Underweight

BMI



The Growth Chart Conversation

The growth charts compare growth to the research data and are reflected in percentiles. When the infant's or child's growth plots in certain areas (below the 5th percentile or above the 95th percentile for example) growth-related risks will be assigned in the participant's file.

Equally important is each child's rate of growth, comparing this child's past measurements and set pattern of growth to the current measurement/pattern of growth.

Growth changes which warrant the **greatest concern** include:

- **Significant changes in the growth pattern of the younger infant/child.** The younger the child the more vulnerable, hence the greater the concern.
- **Significant changes in growth percentiles**, i.e. jumping channels on the growth grid. Although it is normal for children to cross channels frequently in the first two years of life until they establish their own growth pattern, a two-channel change in growth could be cause for concern.
- **Changes occurring quickly**, for example, changes occurring over a one-month period as opposed to a four-month period.
- **Changes in the growth pattern near the extreme percentiles.**

Things to consider if the infant/child's growth deviates from his/her established pattern:

- Has the infant or child been sick recently?
- Have there been changes in appetite, food intake or type of food offered?
- Have there been changes in the child's activity level?
- Have there been changes in the child's environment? New home, daycare provider/caregiver, etc.

The Competent Professional Authority (CPA) can ask these questions and other questions to find clues to why the pattern of growth has changed. The CPA refers to the nutritionist or health care provider as appropriate.

Being “caregiver centered” during the growth chart conversation

- WIC shares growth information with caregivers so they can see how their infant or child is growing.
- We also want to see if the caregiver has any questions or concerns about growth so we can help them identify their own solutions and goals.

	<i>Steps</i>	<i>Examples</i>
1.	<p>Develop a relationship by building rapport with the caregiver.</p> <p>Start with something positive and specific.</p> <p>Give sincere and genuine affirmations.</p>	<p>You do a great job caring for your child.</p> <p>Johnny is so smart!</p> <p>Look at how she looks at you, she sure loves her mom!</p>
2.	<p>Ask if the parent or others have any concerns with the child’s growth.</p> <p>Use reflective listening to show you have heard what the caregiver is saying about her or other’s concerns about the child’s growth.</p> <p>Reflect her words and meaning (your perceptions) back to her.</p>	<p>Do you have any concerns about your child’s growth?</p> <p>When did that concern begin?</p> <p>What do you think has contributed to it? (baby was sick, etc.)</p> <p>Has anyone else been concerned about your child’s growth?</p> <p>Your mother sounds concerned about Kayla’s growth.</p> <p>You’re worried about Kayla’s growth and are not sure if she is growing like she should be growing.</p> <p>You feel your child is growing perfectly.</p>
3.	<p>Ask for permission to share the growth charts with the caregiver.</p>	<p>Would you like to see how your child is doing on the growth charts?</p> <p>The computer has plotted your baby’s measurements on the growth charts, would you like to see them?</p>
4.	<p>Provide a brief description of growth interpretation to caregiver.</p>	<p>Share the growth charts with the caregiver.</p>
5.	<p>After sharing information about the growth charts ask if the caregiver has questions, then listen.</p> <p>If the caregiver has concerns, work with the caregiver so that he or she identifies solutions he or she would like to try.</p>	<p>What questions (or concerns) do you have?</p> <p>Is this what you expected to see?</p> <p>How do you feel about Kayla’s growth?</p> <p>Is there anything new you would like to try?</p> <p>What ideas do you have?</p>

Activity:

- **Review** a child’s and infant’s growth chart in the Sandbox
- How would you **share the information** with the participant’s caregiver, using a participant-centered approach to the conversation? You can use the table below to write in what you would share with the caregiver.
- **Practice** with a co-worker if possible.

Tool to guide your growth chart conversation

	<i>Steps</i>	<i>What I might say</i>
1.	<p>Develop a relationship by building rapport with the caregiver.</p> <p>Start with something positive and specific.</p> <p>Give sincere and genuine affirmations.</p>	
2.	<p>Ask if the parent or others have any concerns with the child’s growth.</p> <p>Use reflective listening to show you have heard what the caregiver is saying about her or other’s concerns about the child’s growth.</p> <p>Reflect her words and meaning (your perceptions) back to her.</p>	
3.	<p>Ask for permission to share the growth charts with the caregiver.</p>	
4.	<p>Provide a brief description of growth interpretation to caregiver.</p>	
5.	<p>After sharing information about the growth charts ask if the caregiver has questions, then listen.</p> <p>If the caregiver has concerns, work with the caregiver so that he or she identifies solutions he or she would like to try.</p>	

APPENDIX

Body Mass Index (BMI) Table for Determining Weight Classification
 BMI Table for Determining Weight Classification
 for Adult **Participants**(1)

Height (Inches)	Underweight BMI <18.5	Normal Weight BMI 18.5-24.9	Overweight BMI 25.0-29.9	Obese BMI ≥ 30.0
58"	<89	89-118	119-142	>142
59"	<92	92-123	124-147	>147
60"	<95	95-127	128-152	>152
61"	<98	98-131	132-157	>157
62"	<101	101-135	136-163	>163
63"	<105	105-140	141-168	>168
64"	<108	108-144	145-173	>173
65"	<111	111-149	150-179	>179
66"	<115	115-154	155-185	>185
67"	<118	118-158	159-190	>190
68"	<122	122-163	164-196	>196
69"	<125	125-168	169-202	>202
70"	<129	129-173	174-208	>208
71"	<133	133-178	179-214	>214
72"	<137	137-183	184-220	>220

(1) Adapted from the Clinical Guidelines on the Identification, Evaluation and Treatment of Overweight and Obesity in Adults. National Heart, Lung and Blood Institute (NHLBI), National Institutes of Health (NIH). NIH Publication No. 98-4083.

What is Body Mass Index (BMI)?

BMI is a measure of body fat based on weight and height. It helps to identify if someone is normal weight, underweight or overweight.

The calculation for BMI is:
$$\frac{\text{Weight (lb)} \times 703}{\text{Height (in)}^2}$$

Good news! Cascades does this calculation for you!

Cascades calculates the woman's pre-pregnant BMI value based on the height and pre-pregnant weight staff enter on the Measures tab.

For more information about BMI you can go to the CDC website:

<http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-adult.htm>

Converting from decimal pounds to ounces

- Check electronic scales to see if the scale displays decimal pounds (tenths) or ounces.
- If the scale measures in decimal units, **convert the decimal pound to ounces.**
- **Enter ounces on the Measures Tab** in Cascades.

Converting Tenths of a Pound to Ounces		
Decimal Pound	⇒	Ounces
.1	=	2
.2	=	3
.3	=	5
.4	=	6
.5	=	8
.6	=	10
.7	=	11
.8	=	13
.9	=	14

Converting from Feet to Inches

Quarter Inches	⇒	8 th Inches
$\frac{1}{4}$	=	$\frac{2}{8}$
$\frac{1}{2}$	=	$\frac{4}{8}$
$\frac{3}{4}$	=	$\frac{6}{8}$

3 Feet

Feet and Inches	⇒	Inches
3 feet	=	36
3 feet, 1 inch	=	37
3 feet, 2 inches	=	38
3 feet, 3 inches	=	39
3 feet, 4 inches	=	40
3 feet, 5 inches	=	41
3 feet, 6 inches	=	42
3 feet, 7 inches	=	43
3 feet, 8 inches	=	44
3 feet, 9 inches	=	45
3 feet, 10 inches	=	46
3 feet, 11 inches	=	47

4 Feet

Feet and Inches	⇒	Inches
4 feet	=	48
4 feet, 1 inch	=	49
4 feet, 2 inches	=	50
4 feet, 3 inches	=	51
4 feet, 4 inches	=	52
4 feet, 5 inches	=	53
4 feet, 6 inches	=	54
4 feet, 7 inches	=	55
4 feet, 8 inches	=	56
4 feet, 9 inches	=	57
4 feet, 10 inches	=	58
4 feet, 11 inches	=	59

Converting from Feet to Inches

Quarter Inches	⇒	8 th Inches
$\frac{1}{4}$	=	$\frac{2}{8}$
$\frac{1}{2}$	=	$\frac{4}{8}$
$\frac{3}{4}$	=	$\frac{6}{8}$

5 Feet

Feet and Inches	⇒	Inches
5 feet	=	60
5 feet, 1 inch	=	61
5 feet, 2 inches	=	62
5 feet, 3 inches	=	63
5 feet, 4 inches	=	64
5 feet, 5 inches	=	65
5 feet, 6 inches	=	66
5 feet, 7 inches	=	67
5 feet, 8 inches	=	68
5 feet, 9 inches	=	69
5 feet, 10 inches	=	70
5 feet, 11 inches	=	71

6 Feet

Feet and Inches	⇒	Inches
6 feet	=	72
6 feet, 1 inch	=	73
6 feet, 2 inches	=	74
6 feet, 3 inches	=	75
6 feet, 4 inches	=	76
6 feet, 5 inches	=	77
6 feet, 6 inches	=	78
6 feet, 7 inches	=	79
6 feet, 8 inches	=	80
6 feet, 9 inches	=	81
6 feet, 10 inches	=	82
6 feet, 11 inches	=	83

Proper Equipment:

Make sure the equipment is:

- **Medical grade** - the same type of equipment used in medical facilities.
- **Set up correctly** and **works well** - mounted at the right height, is level, slides smoothly.
- **Accurate** – check for accuracy often and keep a log in the clinic.
- **Safe** - protect infants and children from falling, participants and staff from tripping, etc.
- **Clean** – keep the equipment clean, follow the manufacturer’s recommendations.

Accurate and Appropriate Techniques:

1. Use the right equipment for the participant:

Participant	Measurement - Equipment	What not to wear
Pregnant, Breastfeeding or Non-Breastfeeding Participants	Standing height – stadiometer Standing weight – adult scale	<ul style="list-style-type: none"> • Take off shoes, hats or anything that affects height • Take off shoes and heavy outer clothing
Infants and children: birth - 24 months of age	Length – recumbent board Sitting or lying weight – infant scale	<ul style="list-style-type: none"> • Remove hats, hair barrettes, braids, or pony tails on top or back of the head • Take off heavy clothing and wet diapers • A onesie or light sleeper is o.k.
Children 2 – 5 years of age	Standing height – stadiometer Standing weight – adult scale	<ul style="list-style-type: none"> • Take off shoes, hats, pony tails or anything that affects height • Take off shoes and heavy outer clothing
Children 24 – 36 months who can't be measured standing	Use the infant equipment Note on the Measures Tab that the client was measure lying down. <u>No length risks will be identified</u>	<ul style="list-style-type: none"> • Same as 2 – 5 years

You can weigh an infant or child without clothes when you're concerned about growth

2. Weigh and measure correctly

- **Review the on-line module** for how to weigh and measure [DOH State WIC Anthropometrics Curriculum](#)
- Remember the **3 points of contact: Shoulder blades, buttocks, and heels.**
- Make sure the person's body is in a **straight line.**

3. Be sensitive to the participant

- **Let the participant know he or she will be weighed and measured**
- **Be sensitive to how the participant feels** about being weighed or measured
- **Keep the equipment clean**
- Place the equipment in an area to **give the participant as much privacy as possible**

Measurement Policies:

Here are some of the main policies for weighing and measuring.

See the WIC Manual [Volume 1, Chapter 9– Anthropometrics](#) for more information.

Policy:	Information:
<p>1. Measurements are required for certifications, subsequent certifications and health assessments. These appointments include:</p> <ul style="list-style-type: none"> • Initial certification (IC) • Subsequent certification (SC) • Mid-certification health assessment for infants, children and breastfeeding participants (MCH) 	<p>Measurements at certification appointments are used to:</p> <ul style="list-style-type: none"> • Assess weight gain of pregnant participants. • Assess growth for infants and children. • Identify risk factors. <p>Staff can weigh and measure participants more often as needed, for example at a Nutrition Ed Individual NE-I or a follow-up (F/U).</p>
<p>2. Measurements can come from the medical provider.</p>	<p>When measurements are from another source:</p> <ul style="list-style-type: none"> • Enter the measurements and change the date to the date they were taken so they will be plotted correctly. • Make a note that the measurements were done at the doctor’s office.
<p>3. Measurements must be taken within the past 60 days to assess the person’s current status.</p>	<p>Federal regulations allow measurements to be taken within 60 days.</p> <p>More current measurements are recommended especially to assess growth for infants and children.</p>
<p>4. When a pregnant woman is presumed eligible, staff have 60 days to take measurements or get them from the health care provider.</p>	<p>Presuming the pregnant participant eligible gives them time to go to the doctor to get measurements and bloodwork done.</p>
<p>5. Pregnant participants must have their weight taken once a trimester and entered in Cascades or the medical record.</p>	<p>This allows WIC to follow the pregnant participant’s weight gain through pregnancy and share progress toward the goal.</p>
<p>6. With the CDC-WHO growth charts the standard is:</p> <ul style="list-style-type: none"> • Length measurements from birth to 24 months of age. • Height measurements from 2 – 5 years of age. 	<p>If you can’t get a height between 2 and 3 years of age, select Recumbent for the Measurement Type and enter the length into the Height field on the Anthro/Lab screen and document pertaining notes in the sticky notes.</p>

Resources:

[WIC Works Resource System WIC Growth Charts](#)

[CDC Growth Chart Training modules](#)

[Health Resources and Services Administration \(HRSA\) Maternal and Child Health Bureau Growth Charts Training](#)