



CDC-WHO Growth Charts



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Color

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Contents

Contents	1
Welcome to the CDC-WHO Growth Chart Training!	2
Agenda.....	2
Growth Charts are a Key Tool.....	3
History of the Growth Charts	3
Comparing the two Growth Charts	4
The WHO Hypothesis	5
Recommendation to Use the WHO Growth Charts	5
Differences between the Charts.....	6
Comparisons of charts.....	8
Identifying risks	11

Welcome to the CDC-WHO Growth Chart Training!

In 2006 the World Health Organization (WHO) published new growth standards. The Center for Disease Control (CDC) released growth charts based on the WHO growth standards. These are the new charts the Colorado WIC Program will be using. This training will share information about the new charts and how we'll implement them.

During this training we'll use these terms when we talk about the charts:

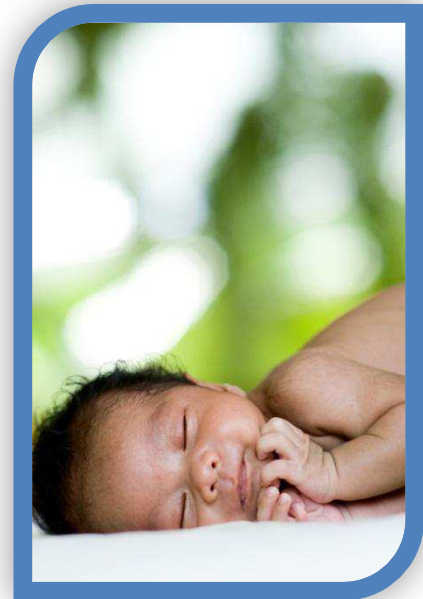
- CDC charts = the current charts we use in WIC
- WHO charts = the new CDC-WHO charts we will be using soon

We are happy to share the new growth charts with you!

Agenda

Part 1: By the end of this section you will have:

- Learned about the new charts and how they were created
- Discovered the differences between the charts and identified trends in growth assessment with the new WHO growth charts
- Seen the new WHO charts
- Reviewed the new growth-related risks



Growth Charts are a Key Tool

WIC uses growth charts to:

- Assess growth
- Identify potential nutrition or health concerns
- Share information with caregivers
- Have open conversations about growth, nutrition and healthy habits.

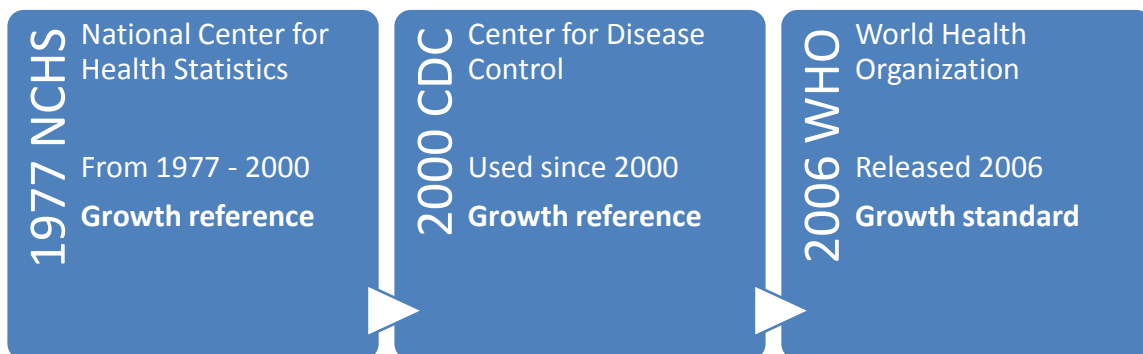


Physical growth is a way to assess the health and wellness of infants and children.

Keep these things in mind through-out this training and think about how they might be affected by the new growth charts.

History of the Growth Charts

Growth charts have been around for at least a century! Here's a brief review of the recent history of the charts used in WIC.



A Growth Reference or a Growth Standard?

Growth Reference – Describes how certain children grew in a particular place and time. It gives a point of comparison.

Growth Standard – Describes how healthy children should grow in a healthy environment regardless of time, place or ethnicity. It defines what is normal or optimal.

Comparing the two Growth Charts

This table shows the differences between the 2000 CDC and 2006 WHO growth charts.

Characteristic	2000 CDC Charts	2006 WHO Charts
Reference or Standard	Reference: <ul style="list-style-type: none"> Describes growth of children in the U.S. during the 1970's and 1980's. 	Standard: <ul style="list-style-type: none"> Describes how children should grow under optimal conditions regardless of time, place, or ethnicity.
Data	Limited number of measurements taken less often. Based on data from national health surveys and birth certificates in the U.S.	Large number of measurements taken frequently from birth to 24 months. Based on data taken in six world locations: <ul style="list-style-type: none"> Pelotas, Brazil Accra, Ghana Delhi, India Oslo, Norway Muscat, Oman Davis, California – U.S.
Requirements	No special requirements to be included in the data.	Had to meet these requirements to be included in the data: <ul style="list-style-type: none"> Adequate socioeconomic status to support growth Access to health care and breastfeeding support Full term birth No smoking during pregnancy or breastfeeding Exclusive or primarily breastfeeding ≥ 4 months Began feeding solids by 6 months Continued breastfeeding ≥ 12 months

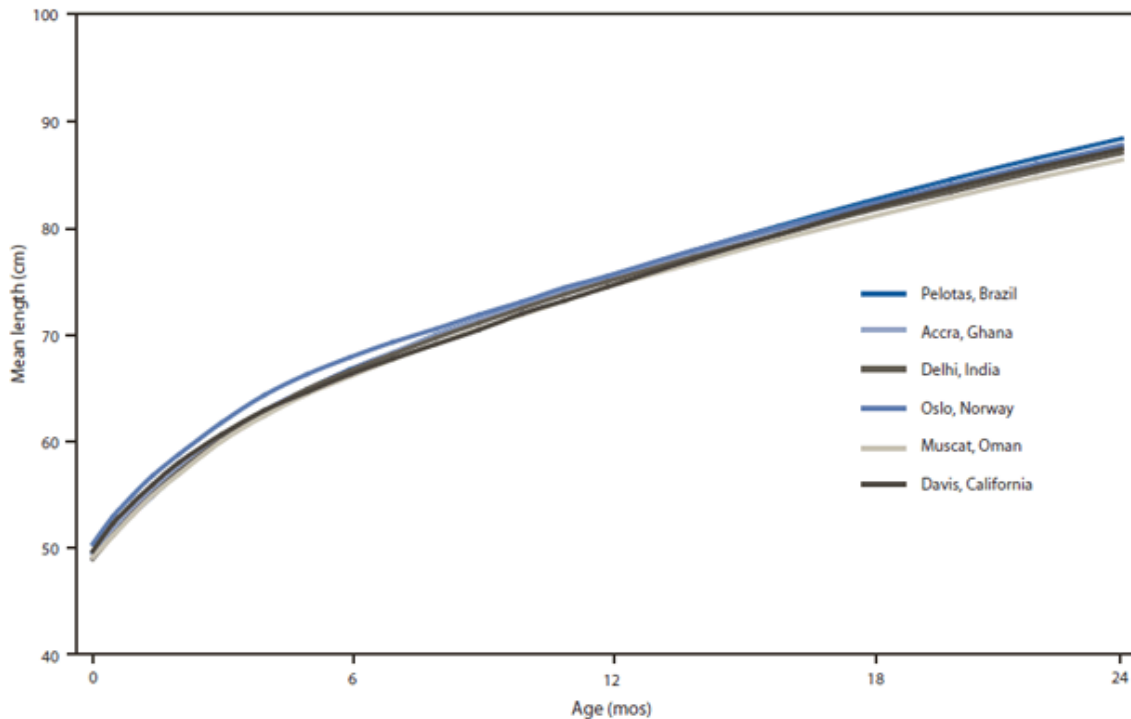
Additional factors:

- ✓ The American Academy of Pediatrics states that the healthy **breastfed infant is the standard** against which all other infants should be compared. The WHO charts are based on this premise.
- ✓ The WHO charts were created with **high quality data**.
- ✓ The WHO charts support the theory that **optimal nutrition + optimal environment + optimal care = optimal growth** regardless of time, place or ethnicity.

The WHO Hypothesis

Children throughout the world will grow similarly if exposed to optimal circumstances.

This chart shows the birth to 24 months growth data from the 6 WHO countries.



“For the first time, we now have a technically robust tool to measure, monitor and evaluate the growth of all children worldwide, regardless of ethnicity, socioeconomic status or type of feeding.”

WHO Committee Member

Recommendation to Use the WHO Growth Charts

The Center for Disease Control (CDC), the National Institutes of Health (NIH), and the American Academy of Pediatrics (AAP) recommend using the **WHO growth charts for children birth to 24 months** in the United States.

USDA accepts the recommendation for WIC.

Colorado WIC will use these growth charts:

- ✓ **WHO growth charts** for children **0 – 24 months of age**
 - Length/Age & Weight/Age, Weight/Length & Head Circumference/Age
- ✓ **CDC growth charts** for children **2 – 5 years old**
 - Height/Age & Weight/Age and BMI/Age
- ✓ CDC weight/length and length/age charts for children 24 - 36 months who can't be measured standing up. These charts are for education only.

Differences between the Charts

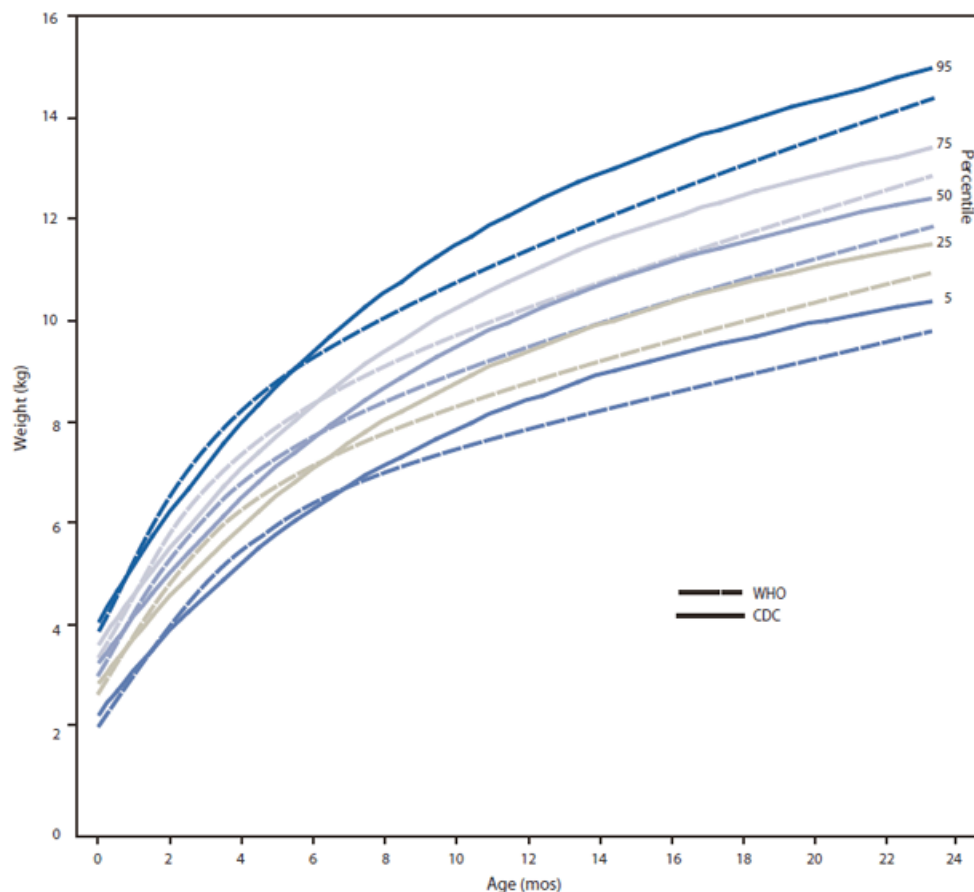


- The WHO charts show a different pattern of growth than the CDC charts.
- WHO measured healthy children under ideal conditions.
- Breastfed infants and children were the standard.

“The healthy breastfed infant is the standard against which all other infants should be compared.”

American Academy of Pediatrics

In general the WHO charts show a higher rate of weight gain in the first months of life, then the rate of weight gain tapers off from 6 to 23 months compared to the CDC growth charts. The chart below shows this comparison.



Differences between the Charts

Here are some of the differences you may notice with the **WHO growth charts**:

Length-for-age:

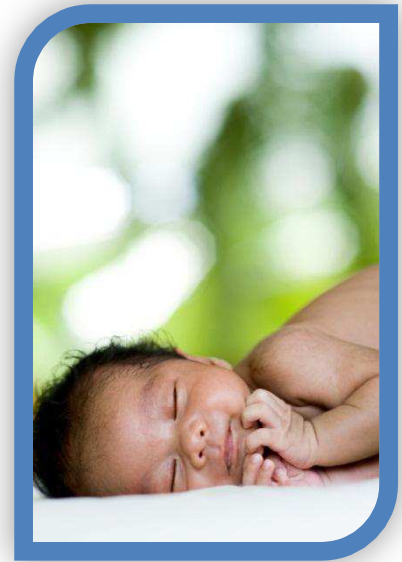
- **Slightly more** infants and children will plot in the **lower length-for-age** percentiles.

Weight-for-age:

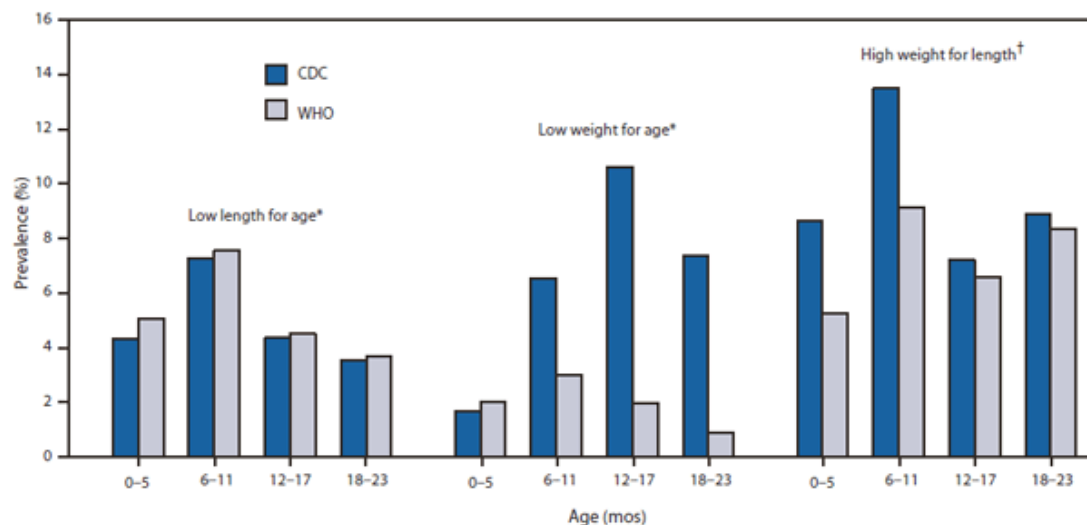
- **Fewer** infants and children will be identified with **low weight-for-age**, especially between 6 and 23 months of age.

Weight-for-length:

- **Slightly lower** number of infants and children with **low weight-for-length**.
- **Fewer** infants and children with **high weight-for-length**.



This bar graph compares the growth patterns between the CDC and WHO growth charts.

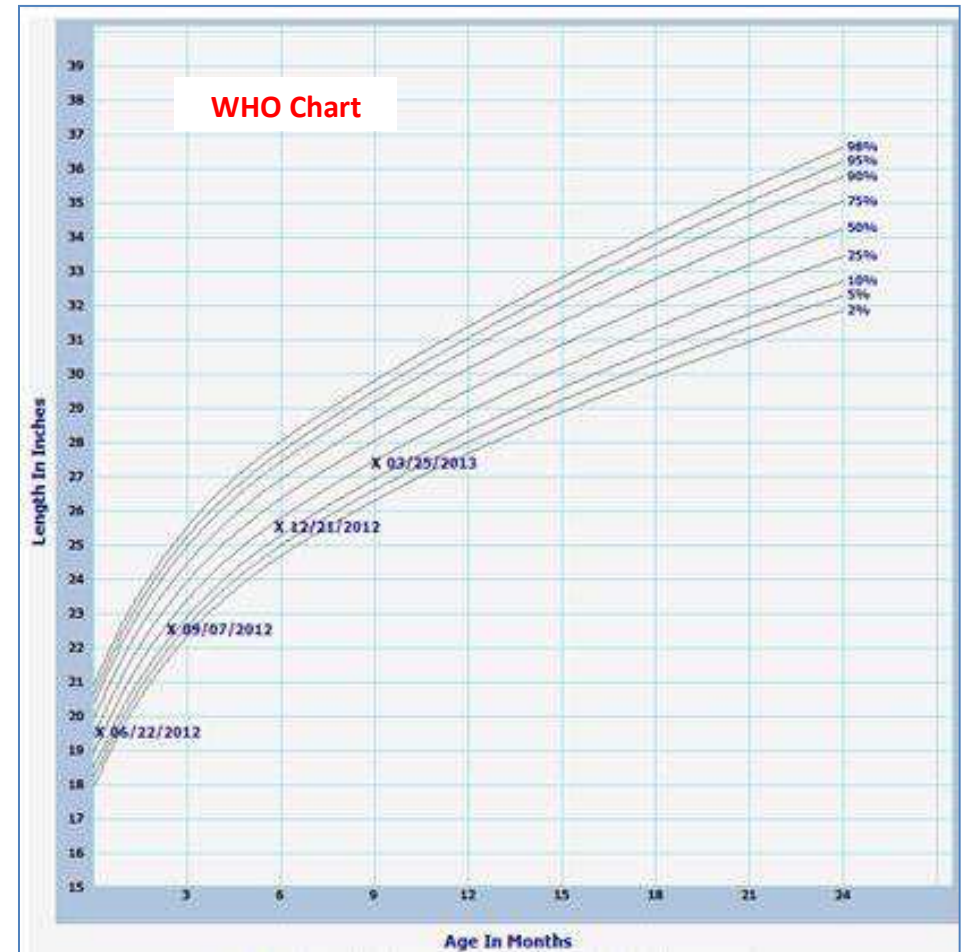
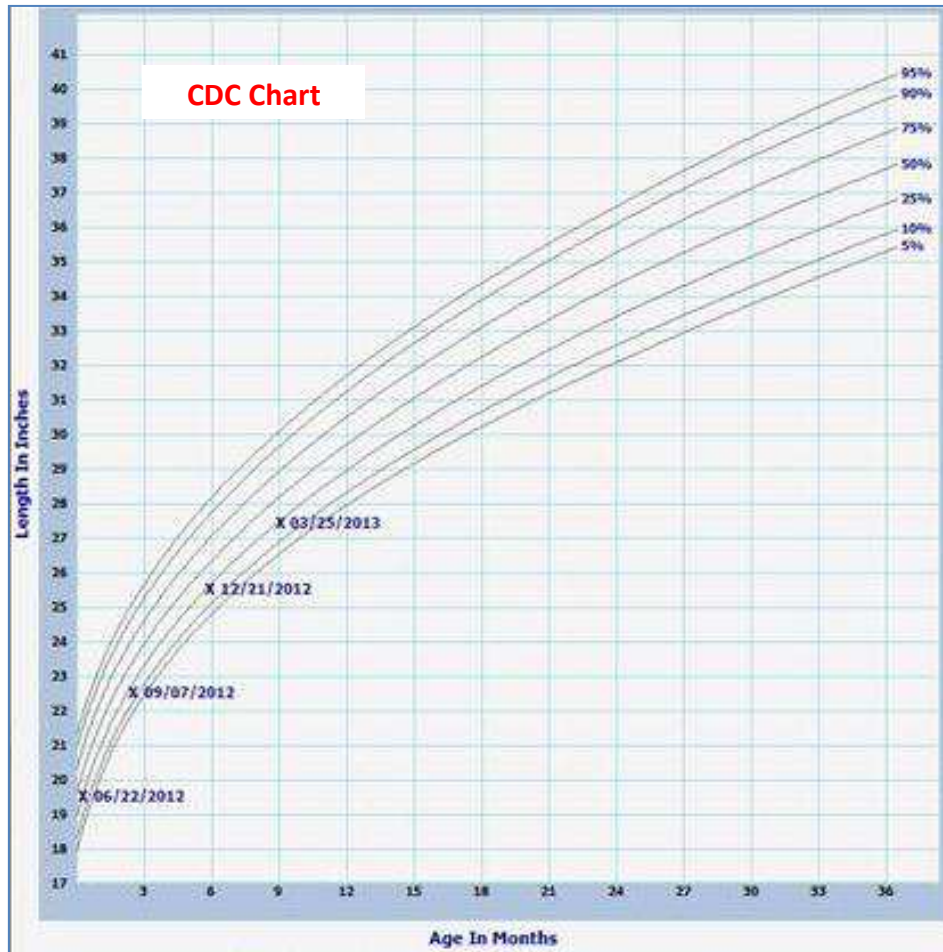


The **WHO charts use different percentiles to identify nutrition risks**.

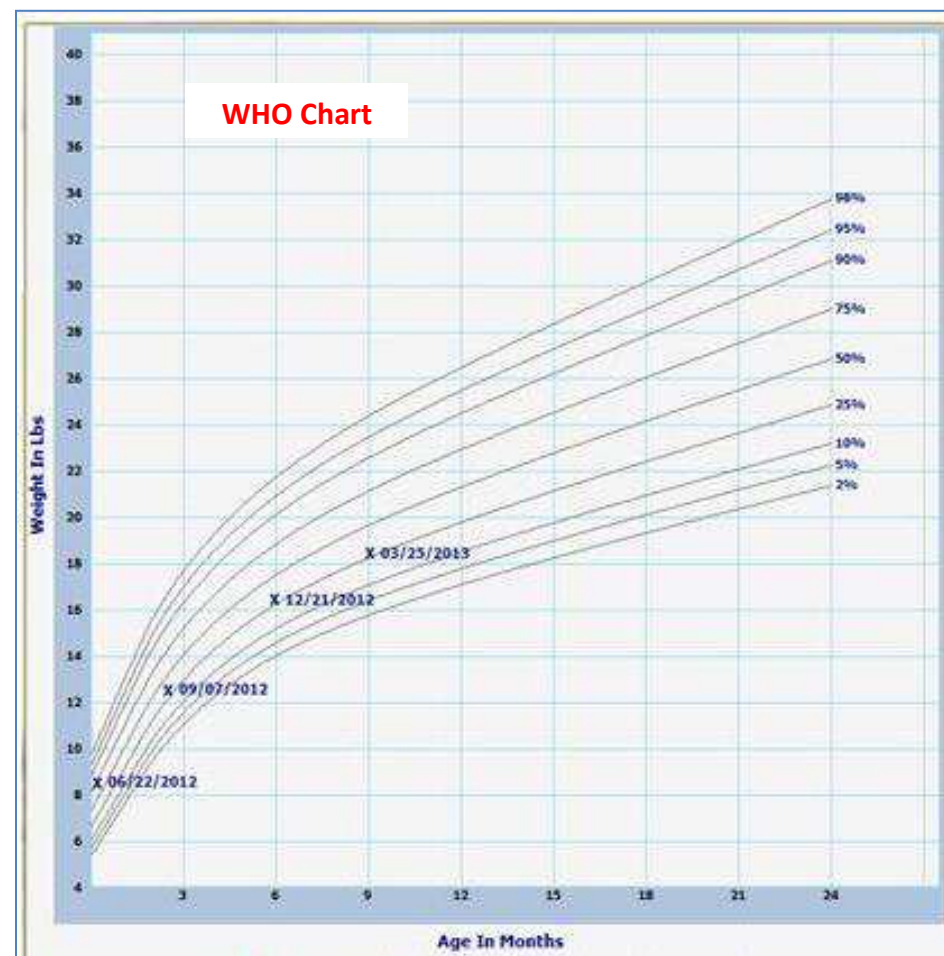
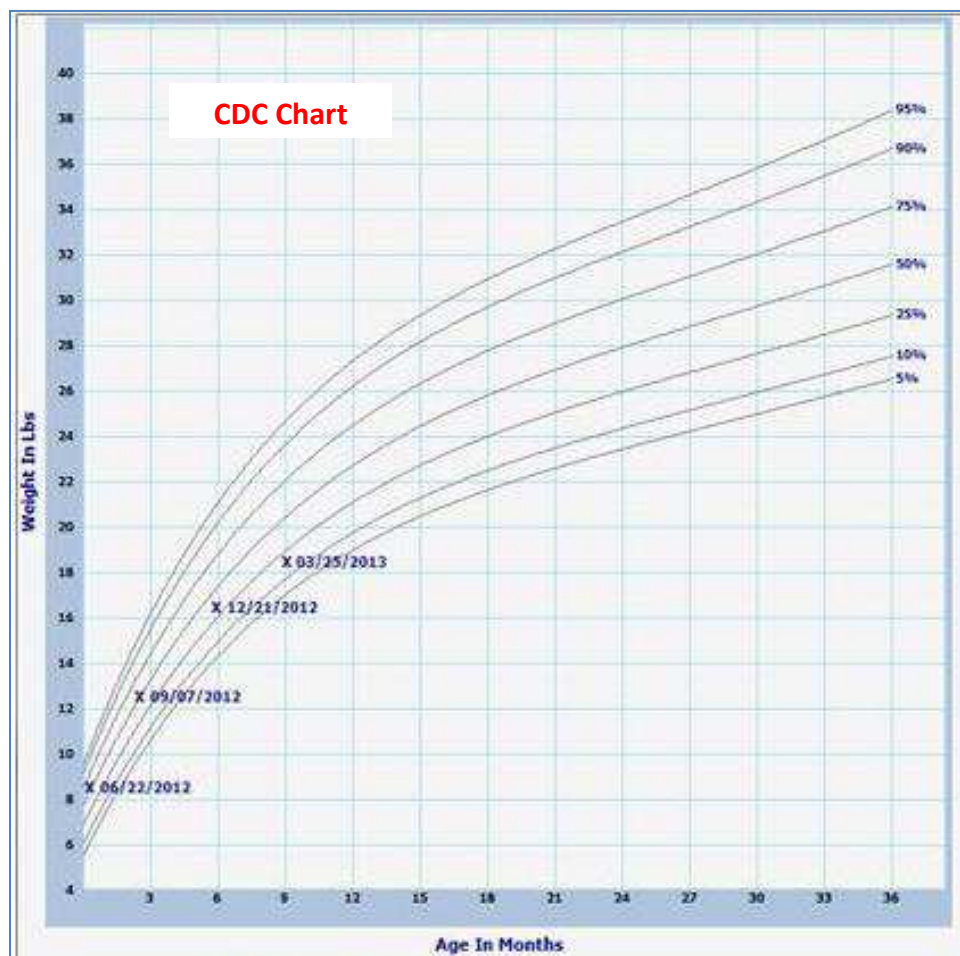
- WHO growth standards are based on healthy children living in optimal conditions so **more extreme cutoffs are used to identify nutrition risk**.
- Use new cutoffs at the **2nd and 98th percentiles** on the WHO charts.

We'll continue to use the **5th and 95th percentiles on the CDC growth charts** for older children.

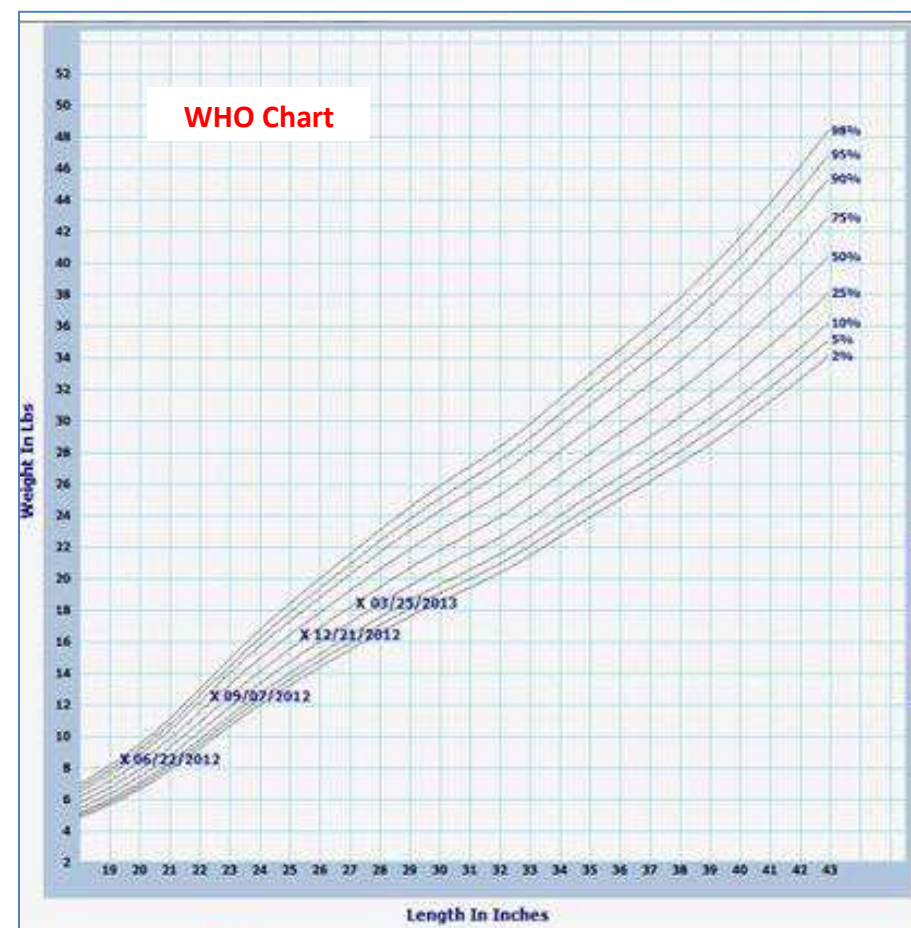
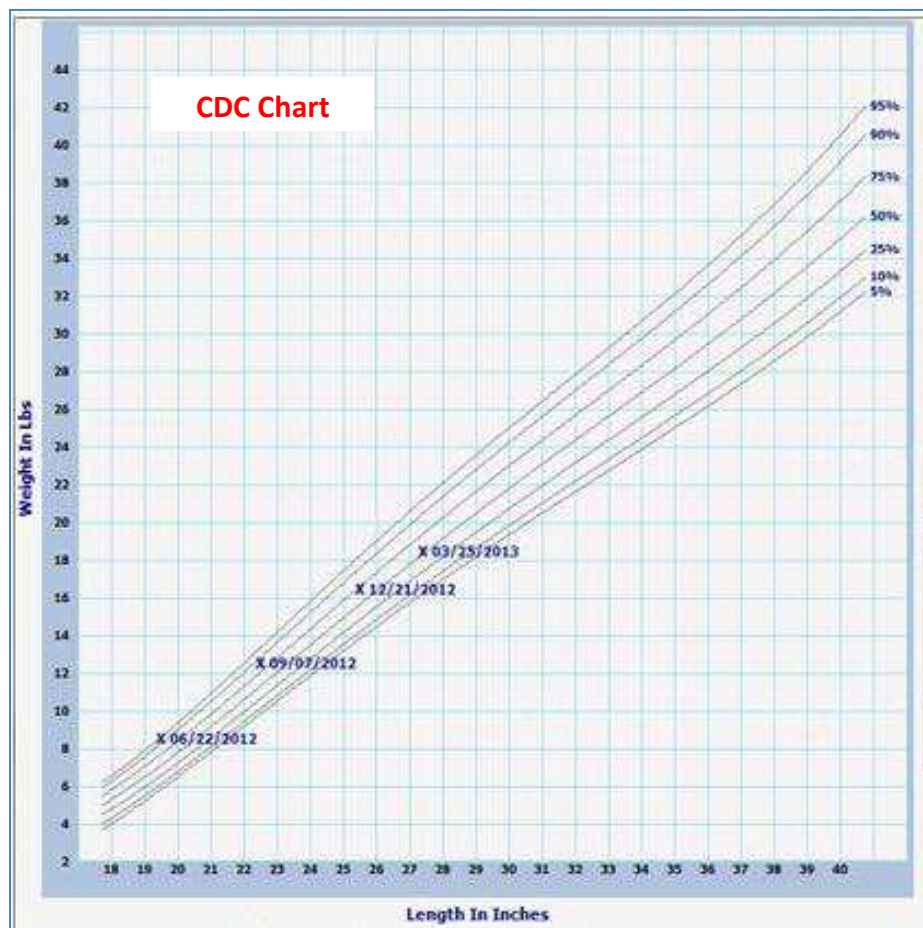
Comparison of Length-for-age



Comparison of Weight-for-age



Comparison of Weight-for-length



Identifying risks

This table lists all the risk changes related to the new WHO growth charts. Bolded risks indicate high risk nutrition risk factors. Highlighted risks are new Colorado WIC nutrition risk factors.

Category	NRF	Current Risks	New Risks
Infant	103B	Weight/Length $\leq 5^{\text{th}}$	Weight/Length $\leq 2^{\text{nd}}$
Infant	103A	Weight/Length $> 5^{\text{th}}$ and $\leq 10^{\text{th}}$	Weight/Length $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$
Infant	115	No overweight risk for infants	Weight/Length $\geq 98^{\text{th}}$
Infant	121B*	Length/Age $\leq 5^{\text{th}}$	Length/Age $\leq 2^{\text{nd}}$
Infant	121A*	Length/Age $\leq 10^{\text{th}}$	Length/Age $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$
Child	103B	Weight/Length $\leq 5^{\text{th}}$	Weight/Length $\leq 2^{\text{nd}}$ (12 to < 24 months)
Child	103A	Weight/Length $> 5^{\text{th}}$ and $\leq 10^{\text{th}}$	Weight/Length $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$ (12 to < 24 months)
Child	115	No overweight risk for children 12–24 months	Weight/Length $\geq 98^{\text{th}}$ (12 to < 24 months)
Child	121B	Length/Age $\leq 5^{\text{th}}$	Length/Age $\leq 2^{\text{nd}}$ (12 to < 24 months)
Child	121A	Length/Age $\leq 10^{\text{th}}$	Length/Age $> 2^{\text{nd}}$ and $\leq 5^{\text{th}}$ (12 to < 24 months)

* Assignment of NRF 121A and 121B for premature infants is based on adjusted gestational age.

Note: Children 24-36 months measured recumbently will no longer be plotted on the 0-36 month CDC chart. They will be plotted on the 2-5 year CDC chart. Staff will indicate an inaccurate reason for a child measured recumbently after 24 months of age; the recumbent check box has been removed from the Anthropometric panel in Compass.

Special considerations with Compass switch to WHO charts

With the new release, the 0-36 month CDC charts will be removed from Compass. All the previous growth measurements will be transferred to the new WHO 0-24 month charts. Thus, prior assessment and risking may not match the percentile of the plot point in the new WHO growth charts.